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N.M.

OF THE

UNITED STATES NATIONAL MUSEUM.

No. 14.

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1879.

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This work is the fourteenth of a series of papers intended to illustrate the collections of Natural History and Ethnology belonging to the United States and constituting the National Museum, of which the Smithsonian Institution was placed in charge by the act of Congress of August 10, 1846.

It has been prepared at the request of the Institution, and printed by authority of the honorable Secretary of the Interior.

SPENCER F. BAIRD,
Secretary Smithsonian Institution.

SMITHSONIAN INSTITUTION,
Washington, April 3, 1879.

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CATALOGUE

OF THE

COLLECTION TO ILLUSTRATE

THE

ANIMAL RESOURCES AND THE FISHERIES

OF THE

UNITED STATES,

EXHIBITED AT PHILADELPHIA IN 1876 BY THE SMITHSONIAN INSTITUTION AND THE UNITED STATES FISH COMMISSION, AND FORMING A PART OF THE UNITED STATES NATIONAL MUSEUM.

PREPARED UNDER THE DIRECTION OF

G. BROWN GOODE.

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Secretary Smithsonian Institution.

SPENCER F. BAIRD,
Director of the Exhibition.

G. BROWN GOODE,
In charge of Collection.

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Artists.—J. H. Richard and A. Zeno Shindler.
Modeler.—Joseph Palmer.
Taxidermist.—Julius Stoerzer.
Photographer.—T. W. Smillie.

TABLE OF CONTENTS.

Page.

INTRODUCTORY NOTE XV

SECTION A.—LIST OF ANIMALS OF NORTH AMERICA BENEFICIAL OR INJURIOUS TO MAN.

I. MAMMALS 1
1. Feræ (carnivores) 1
Fissipedia (land carnivores) 1
Pinnipedia (seals, &c.) 5
2. Ungulata (hoofed animals) 7
3. Sirenia (sea-cows, &c.) 9
4. Cete (whales) 10
Denticete (sperm whales and dolphins) 10
Mysticete (baleen whales) 12
5. Insectivora (moles, &c.) 13
6. Glires (gnawers) 14
7. Marsupialia (marsupiates) 20
II. BIRDS 20
III. REPTILES 21
8. Crocodilia (crocodiles) 21
9. Testudinata (tortoises) 21
V. FISHES 23
10. Pediculati (anglers) 23
11. Plectognathi (globe, trunk, and file fishes) 23
12. Lophobranchii (pipe-fishes, &c.) 25
13. Teleocephali 26
Heterosomata (flat fishes) 26
Anacanthini (cods, &c.) 28
Acanthopteri (spiny-finned fishes) 31
Percesoces (mullets, &c.) 53
Synentognathi (gar-fishes and flying-fishes) 54
Haplomi (pikes, &c.) 55
Isospondyli (salmon, herring, &c.) 56
Eventognathi (carps) 61
14. Nematognathi (cat-fishes) 62
15. Apodes (eels) 63
16. Cycloganoidei (amias) 63
17. Rhomboganoidei (gar-pikes) 64
18. Selachostomi (paddle-fish) 64
19. Chondrostei (sturgeons) 64
VI. ELASMOBRANCHIATES 65
20. Holocephali (chimæras) 65
21. Raiæ (skates and rays) 66
22. Squali (sharks) 67

Page.
VII. Marsipobranchiates 70
23. Hyperoartia (lampreys) 70
24. Hyperotreti (hags) 70
VIII. Leptocardians 70
25. Cirrostomi (lancelets) 70

Section B.—MEANS OF PURSUIT AND CAPTURE.

†*Apparatus of direct application.*

I. Hand-implements (simple tools) 71

* *For striking.*

1. Clubs 71
2. Slung weight 71

** *For cutting.*

3. Knives 71
4. Axes 76

*** *For thrusting.*

5. Spears and prods 78
II. Implements for seizure of object 79

* *Scooping-instruments.*

6. Scoops 79

** *Grasping-hooks.*

7. Hooked implements (used with single motion, that of hooking) 80
8. Barbed implements (used with two motions, the first that of thrusting) 82
9. Tongs, &c 85

*** *Grasping-lines.*

10. Nooses (lariats and snares) 86
11. Loaded lines (bolas) 86

**** *Entangling-lines.*

12. Tangles 87

†† *Apparatus of indirect application.*

III. Missiles 87

* *Simple missiles (those propelled by the unaided arm).*

13. Hurled weights 87
14. Hurled sticks 87
15. Hurled spears, lances 88

** *Centrifugal missiles (propelling power augmented by artificial lengthening of the arm).*

16. Slings, and spears thrown by straps 88
17. Missiles thrown by "throwing-sticks" 88

*** *Missiles propelled by a spring.*

† Spring consisting of bent rod.

18. Bows and arrows 88

Page.

III. Missiles—Continued.

‡‡ Spring consisting of elastic cord.

19. India-rubber slings 89

‡‡‡ Spring consisting of metallic helix.

20. Spring-guns 89

**** *Missiles propelled by compressed air or water.*

21. Air-guns 89
22. Water-guns 90

***** *Missiles propelled by combustion of gunpowder.*

23. Fire-arms 90
24. (Accessory.) Ammunition and its preparation 91
25. (Accessory.) Accessories of loading, repairing, and testing fire-arms .. 93
26. (Accessory.) Accessories for carrying fire-arms. (Accoutrements) 94

IV. Baited hooks—Angling-tackle 95
27. Hooks with movable lines.—Hand-tackle 95
28. Hooks with stationary lines.—Set-tackle 97
29. (Accessory.) Parts and accessories to angling-apparatus 97

††† *Apparatus to a greater or less extent automatic.*

V. Nets 122
30. Entangling (meshing) nets 122
31. Encircling nets 126

†††† *Apparatus entirely automatic.*

VI. Traps 131
32. Pen-traps 131
33. Clutching-traps 134
34. Fall-traps 135
35. Missile-traps 135
36. Adhesive preparations 135

VII. Apparatus for wholesale destruction 136
37. Poisons 136
38. Asphyxiating apparatus 136
39. Torpedoes 136

††††† *Accessories to the chase and fishing.*

VIII. Hunting-animals 136
40. Hunting-mammals 136
41. Accessories to hunting-mammals 136
42. Hunting-birds 137
43. Accessories to hunting-birds 137
44. Hunting-fishes 137

IX. Decoys and disguises 137
45. Baits 137
46. Decoys 138
47. Covers 141

X. Pursuit—its methods and appliances 142
48. Methods of transportation 142
49. Camp-outfit 162
50. Personal equipments 164

SECTION C.—METHODS OF PREPARATION.

	Page.
I. PREPARATION AND PRESERVATION OF FOODS	169
1. Preservation of the living animals (see E, 3)	169
2. Preservation of fresh meats	169
3. Drying	169
4. Canning and pickling	169
5. Preparation of baits	170
II. MANUFACTURE OF TEXTILE FABRICS, FELTS, AND STUFFINGS	170
6. From hair of mammals	170
7. From whalebone	170
8. From feathers	170
9. From silk of insects	171
10. From soft parts of other invertebrates	171
III. PREPARATION OF THE SKIN AND ITS APPENDAGES	171
11. Currying	171
12. Tanning	172
13. Fur-dressing	172
14. Feather-dressing	172
15. Manufacture of quill articles	172
16. Hair and wool work	172
IV. PREPARATION OF THE HARD TISSUES	173
17. Ivory cutting and carving	173
18. Preparation of horn and hoofs	173
19. Preparation of whalebone	173
20. Preparation of tortoise-shell	174
21. Preparation of fish-scale work, &c	174
22. Preparation of nacre	174
23. Preparation of coral	174
24. Preparation of other hard tissues	174
V. PREPARATION OF OILS AND GELATINES	174
25. Extraction of whale-oils	174
26. Extraction of other mammal oils	175
27. Extraction of bird and reptile oils	175
28. Extraction of fish-oils	175
29. Extraction of glue, gelatine, and isinglass	175
VI. PREPARATION OF DRUGS, PERFUMES, AND CHEMICAL PRODUCTS	175
30. Preparation of perfumes	175
31. Manufacture of ivory-black	175
32. Manufacture of prussiates	175
33. Manufacture of murexides	175
34. Manufacture of cochineal colors	175
35. Manufacture of inks	175
36. Manufacture of albumen	175
37. Manufacture of pepsin	175
38. Manufacture of phosphorus	175
39. Manufacture of sal ammoniac	175
40. Manufacture of ammonia	175
41. Manufacture of albumen preparations	175
42. Manufacture of propylamine	175
43. Manufacture of formic acid	175
44. Manufacture of carbazotates	175
VII. PREPARATION OF FERTILIZERS	176
45. Preparation of fertilizers	176
VIII. PREPARATION OF LIMES	176
46. Burning of lime	176

Page.
IX. Preservation of the animal for scientific uses 176
47. Preservation of wet preparations 176
48. Skeleton-making 177
49. Modeling 177
50. Taxidermy 178
51. (Accessory.) Photographic and other delineating apparatus 178

Section D.—ANIMAL PRODUCTS AND THEIR APPLICATIONS.

I. Foods 179
1. Foods in a fresh condition 179
2. Foods dried and smoked 182
3. Foods salted, canned, and pickled 184
4. Gelatines (see 24) 187
5. Baits and foods for animals 187
II. Clothing 188
6. Furs 188
7. Leathers (see 20) 195
8. Textile fabrics 195
III. Materials employed in the arts and manufactures 197

** Hard materials.*

9. Ivory and bone 197
10. Horn 201
11. Hoofs and claws 202
12. Baleen 203
13. Tortoise-shell 205
14. Scales 205
15. Pearl 206
16. Shells 206
17. Coral 207
18. Infusorial earth 207
19. Other materials derived from invertebrates 208

*** Flexible materials.*

20. Leather 208
21. Hair and wool (see also 8) 217
22. Quills 219
23. Feathers 219
24. Gelatine and isinglass 220
25. Flexible materials from insects and mollusks 222
26. Sponges 223

**** Fluids and soft materials.*

27. Oils and fats 223
28. Perfumes 227
29. Coloring materials 228
30. Chemical products and agents employed in the arts and medicine 229
31. Fertilizers 231
32. Limes (see under 30) 232
33. Other materials 232

Section E.—PROTECTION AND CULTURE OF USEFUL ANIMALS.

I. Investigation 233
1. The methods of the United States Fish Commission 233

Page.
II. Protection 241
2. Preservation of game and fish 241
4. (Accessory.) Enemies of useful animals 244
III. Propagation 244
5. Propagation of mammals 244
6. Propagation of birds 244
7. Propagation of reptiles 245
8. Propagation of amphibians 245
9. Propagation of fishes 245
10. Propagation of insects 248
11. Propagation of leeches 248
12. Propagation of mollusks 248
13. Propagation of corals 248
14. Propagation of sponges 248

CATALOGUE OF ILLUSTRATIONS OF THE ECONOMICAL INVERTEBRATES OF THE AMERICAN COASTS. BY W. H. DALL.

Mollusca cephalopoda.—Squids and Cuttles 251
Mollusca gasteropoda.—Sea-Snails, &c 251
A. Useful 251
1. Used for food or bait 251
2. Useful by producing pearl-shell, &c 251
3. Affording cameo and porcelain stock 252
4. Used in Indian trade 252
5. Affording dyestuffs 252
6. Affording bird-lime 252
B. Injurious 253
1. By destroying food-producing mollusks or shell-fish, such as clams, mussels, oysters, and razor-fish 253
2. Injurious by destroying vegetable substances and garden plants 253
Mollusca acephala.—Bivalve Shellfish 253
A. Producing food or used as bait 253
1. Series illustrating distribution and geographical varieties 253
Ostrea virginica, Gmelin.—East American Oysters 253
Ostrea lurida, Cpr.—West Coast Oysters 253
1. Extra limital 254
2. Series illustrating culture and individual variations 255
Ostrea virginica, Gmelin.—East American Oysters 255
a. Growth. 1–20 years old 255
b. Peculiarities of form and growth 255
c. Enemies and parasites 255

**** Other bivalves.*

A. Affording or available for food or bait 256
B. Useful or ornamental bivalves other than those affording food 256
a. Pearl-producing 256
1. River mussels 256
2. Marine pearl-shells 258
b. Otherwise useful 258
C. Injurious bivalves 258
a. Destroying submerged timber 258
1. Specimens of wood showing ravages 258
D. Prepared foods 259

Page.
CRUSTACEA PHYLLOPODA 259
A. Useful. Converted into fertilizers. Carapax used as a scoop or boat-bailer 259
CRUSTACEA ISOPODA 260
A. Useful; by removing wrecks or snags 260
B. Injurious; by destroying submerged timber 260
CRUSTACEA STOMATOPODA 260
CRUSTACEA DECAPODA.—Lobsters, Shrimp, Crawfish, Crabs 260
A. Useful; food-supplying 260
B. Commensal with other food supplies 261
C. Injurious by burrowing into and weakening levees and dams 261
D. Prepared foods 261
CIRRIPEDIA (injurious) 262
a. By dulling the edge of knives and spades employed in "cutting in" whale blubber 262
b. By obstructing the progression of vessels upon which they affix themselves 262
ANNELIDA.—Worms and Leeches 262
A. Useful 262
1. In surgery and medicine 262
2. For bait in fishing 262
3. For food 262
B. Injurious 262
1. By boring into and destroying oyster-shells 262
RADIATES.—Sea-Urchins, Starfish, Corals, Medusae, etc 262
A. Useful 262
1. Food-producing 262
B. Injurious 263
1. Destroying oysters, clams, &c 263
2. By their urticating powers annoying bathers and "fouling" nets and fishing lines with slime—various acalephs 263
PROTOZANS.—Sponges, etc 263
Useful 263
1. For conveyance of fluids requiring an elastic and temporary menstruum, and as a detergent 263
2. Useful as an elastic medium or absorbent 264
Injurious 264
1. By destroying oysters 264
RHIZOPODS 264

MISCELLANEOUS PRODUCTS OF SEA OR SHORE, NOT OF AN ANIMAL NATURE.

a. Lichens 264
b. Algæ 265
1. Having economical applications 265
2. Ornamental algæ 265
INORGANIC MATERIALS 271

COMMERCIAL STATISTICS OF ANIMAL PRODUCTS IN THE UNITED STATES. A REVIEW OF A PORTION OF THE REPORT OF THE CHIEF OF THE BUREAU OF STATISTICS FOR THE FISCAL YEAR ENDING JUNE 30, 1877. BY G. BROWN GOODE.

	Page.
Living animals	272
Food products, except fish	274
Fish	277
'	282
Ivory	288
Horn	289
Whalebone	289
Shell	289
Coral	289
Leather	289
Hides and skins	290
Bristles	294
Quills	295
Feathers	295
Glue and gelatine	295
Sponges	295
Oils, fats, and soaps	295
Perfumery materials	297
Coloring materials	297
Chemical preparations, medicines, &c	298
Bones	298
Guano and other fertilizers	299
Specimens of natural history	299
Alphabetical index	301

INTRODUCTORY NOTE.

On the occasion of the International Exhibition, in 1876, certain appropriations were made by Congress to the Smithsonian Institution and the United States Fish Commission. The former was called upon to prepare an exhibition to illustrate the economical value of the mineral and animal products of the country, while the latter was to perform a similar task for the national fisheries. It was subsequently found desirable for the Smithsonian Institution to unite with the Indian Bureau in displaying the condition of the aboriginal tribes of the United States in prehistoric and modern times. Four distinct departments of work were thus provided for, (1) an ethnological exhibition, (2) an exhibition of minerals, (3) an exhibition of animal resources, and (4) a fishery exhibition. The first and second were arranged on opposite sides of the nave in the Government building, at Philadelphia, and at its north end. The latter, it was found, could not be separated, since the character of the specimens and the methods of arrangement required were the same. They were arranged in one series on the north side of the east transept and to the east of the nave extending north to the beginning of the mineral series.

The following catalogue is a simple enumeration of the objects exhibited in this series, and illustrative of the animal resources and the fisheries of the United States. It is essentially a reproduction of the card-catalogue prepared in 1876 and still in use in the administration of the collection, which, having been greatly augmented by systematic efforts in the United States and by donations from foreign governments, now forms an important section of the United States National Museum. The catalogue has been as far as practicable made complete up to the present time, in so far as it relates to North America. No effort has, however, been made to include the collateral series of specimens from foreign countries.

The plan of arrangement is fully shown in the TABLE OF CONTENTS. Beginning with the Useful and Injurious Animals, it next takes up the MEANS OF PURSUIT AND CAPTURE, then, successively, the METHODS OF PREPARING THEM FOR USE, THE USEFUL PRODUCTS, and, finally,

the MEANS OF PROTECTION AND CULTURE. The preliminary plan of classification is given in full, whether specimens were obtained to illustrate it or not, and indicates wherein the collection isstill imperfect.*

It seems appropriate to remark that a very large number of the specimens included in this catalogue and exhibited in Philadelphia were borrowed from the permanent collections of the National Museum, and have for many years been on exhibition in the Smithsonian building.

G. BROWN GOODE.

WASHINGTON, *April* 11, 1879.

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* For a fuller exposition of this plan see the following pamphlet:

International Exhibition 1876. | Board in Behalf of United States Executive Departments. | ═══ | Classification | of the | Collection to Illustrate | the Animal Resources of the United States. | A List of Substances derived from the Animal Kingdom, with Synopsis of the Useful and Injurious Animals | and a Classification of the Methods | of Capture and Utilization. | ——— | By G. Brown Goode, M. A., | Assistant Curator | U. S. National Museum. | ——— | Washington: | Government Printing Office. | 1876. | 8vo. pp. xiii (1) 136. Also published as Bulletin No. 6, Department of the Interior, United States National Museum; and as Article VI in Vol. XII of the Smithsonian Miscellaneous Collections, Washington, 1878.

SECTION A.

LIST OF ANIMALS OF NORTH AMERICA BENEFICIAL OR INJURIOUS TO MAN.

*I. MAMMALS.

Order FERÆ.

Suborder FISSIPEDIA.

FELIDÆ.

Lynx rufus, (Guldenstädt,) Raf.—Bay Lynx or Wild Cat.—North America.

12476. Mounted. Denver, Col. C. E. Aiken. Dec. 14, 1875.
12477. Mounted. (Young.) Denver, Col. C. E. Aiken.

Lynx canadensis, (Geoff. & Desm.,) Raf.—Canada Lynx.—Northern North America.

12475. Mounted. Houlton, Me. Rev. R. R. McLeod. Dec. 15, 1875.

Felis eyra, Desm.—Eyra Cat.—Southwestern North America.

9582. Mounted. Tehuantepec, Mex. F. Sumichrast.

Felis yaguarundi, Desm.—Yaguarundi Cat.—Southwestern North America.

8480. Mounted. Tabasco, Mex. Col. Sarto.

Felis concolor, Linn.—Puma or Cougar.—America generally.

11813. Mounted. Central Colorado. James Stevenson. 1874.

Felis onca, Linn.—Jaguar.—Southwestern States. Central and South America.

10330 + 12290. Mounted. Died in captivity at Government Insane Asylum, Washington.*

* The numbers prefixed to the enumeration of specimens are Smithsonian catalogue numbers. When two numbers are given, separated by the mark of division (—), the first mentioned refers to the particular preparation of the animal in question; the second, to some other related part entered in a different series. For example, in 10330—12290, the first number belongs to the skin and the second to the skeleton of a specimen of *Felis onca*.

Felis pardalis, Linn.—OCELOT or TIGER CAT.—Southwestern North America.

12179 ÷ 14179. Mounted. Talamanca, Costa Rica. Talamanca expedition. Prof. W. M. Gabb.

12187. Mounted. Talamanca, Costa Rica. Talamanca expedition. Prof. W. M. Gabb.

CANIDÆ.

Canis lupus, Linn., *var.* **grisco-albus.**—GRAY WOLF.—North America generally.

3573 ÷ 3520. Mounted. (Winter pelage.) Platte River, Neb. C. Drexler.

Vulpes fulvus, (Desm.,) *var.* **fulvus,** (Desm.)—RED FOX.—Northern North America.

7124. Mounted. (Male.) La Pierre's House, Rocky Mts. R. Kennicott. Dec., 1861.

6403. Mounted. (Female.) Yukon River. R. Kennicott. Oct. 21, 1860.

Vulpes fulvus, (Desm.,) *var.* **decussatus.**—CROSS FOX.

6407. Mounted. (Female). Ft. McPherson, Peels River, Hudson's Bay Territory. R. Kennicott. Nov. 28, 1861.

"A very fine cross fox, nearly silver, small and apparently young. The Indians told me she would be a silver fox next year."—Kennicott.

6408. Mounted. (Female.) Ft. McPherson, Peels River, H. B. T. R. Kennicott. Nov. 30, 1861.

"A good typical cross fox; tail rather small."—Kennicott.

6404. Mounted. (Male.) Yukon River. R. Kennicott. Oct. 22, 1860.

"A rather fine cross fox, approaching more nearly the silver fox than the red."—Kennicott.

12466. Mounted. Houlton, Maine. Rev. R. R. McLeod. Dec. 31, 1875.

Vulpes fulvus, (Desm.,) *var.* **argentatus.**—SILVER FOX: BLACK FOX.

6410. Mounted (Male.) Yukon River. R. Kennicott. Nov. 17, 1860.

"A fine silver fox."—Kenn.

6411. Mounted. (Female.) Ft. McPherson, Peels River, H. B. T. R. Kennicott. Oct. 17, 1861.

"Black fox; some had still less silver."—Kenn.

Vulpes macrurus, Baird.—PRAIRIE FOX.—Western States.

——. Mounted. Wyoming.

Vulpes velox, (Say,) Aud. & Bach.—KIT FOX or SWIFT FOX.—Western States.

12470. Mounted. Colorado. Chas. E. Aiken. Jan. 15, 1876.

12469. Mounted. Colorado. Chas. E. Aiken. Jan. 15, 1876.

11085. Mounted. Rocky Mountains.

Vulpes lagopus, (Linn.,) Gray.—ARCTIC FOX.—Alaska.

——. Skin. St. Paul's Id., Alaska. G. R. Adams.

Urocyon virginianus, (Schreber,) Gray.—GRAY FOX.—United States generally.

——. Mounted. Virginia.

Urocyon virginianus, (Schreber,) *var.* **littoralis.**—COAST GRAY FOX.—Islands of the California coast.

12440. Mounted. Santa Cruz, Cal. H. W. Henshaw. U. S. Survey W. of 100 M.

MUSTELIDÆ.

Mustela Pennanti, Erxl.—FISHER.—Northern North America.

12472. Mounted. Houlton, Maine. Rev. R. R. McLeod. Jan. 15, 1876.
3279. Mounted. Olympia, W. T. Geo. Gibbes.

Mustela americana, Turton.—PINE MARTIN or AMERICAN SABLE. Northern United States.

12544. Mounted. Hudson's Bay Territory. R. Kennicott.
379. Mounted. Hudson's Bay Territory. R. Kennicott
—— Mounted. Hudson's Bay Territory. R. Kennicott.
1015. Mounted. Hudson's Bay Territory. R. Kennicott.
6414. Mounted. Yukon River, mouth of Porcupine, Hudson's Bay Territory. R. Kennicott.
6429. Mounted. Yukon River, mouth of Porcupine, Hudson's Bay Territory. R. Kennicott.

Putorius cremina, (Linn.,) Cuvier.—WHITE WEASEL: ERMINE.—Northern United States.

9355. Mounted. Kodiak. F. Bischoff. 1868.
6498÷1029. Mounted. (Male.) Yukon River, mouth of Porcupine R. R. Kennicott.
1427. Mounted. (Male.) Middleboro, Mass. J. W. P. Jenks.

Putorius longicauda, Bonaparte.—LONG-TAILED WEASEL.—Western United States.

9350. Mounted. Wyoming Territory. Dr. F. V. Hayden.

Putorius vison, Rich.—MINK.—North America generally.

12432. Mounted. (Male.) Moore's Lake, Minn. J. H. Batty.
4396. Mounted. Liard River. R. Kennicott.
1653÷12309. Mounted. United States.
2392. Mounted. Cape Flattery, W. T. Dr. Suckley.

Putorius nigripes, Aud. & Bach.—BLACK-FOOTED FERRET.—Western States (in holes of Prairie dogs).

12409. Mounted. Spotted Tail Agency, Neb. Col. A. Chambers, U. S. A. Oct. 1, 1875.
12462. Mounted. Cheyenne, Wyoming. Capt. Jas. Gilliss, U. S. A. Dec. 27, 1875.

Gulo luscus, Sabine.—WOLVERENE or GLUTTON.—Northern North America.

3747. Mounted. Great Salt Lake, Utah. Capt. Stansbury.
4361. Mounted. Ft. Simpson, H. B. T. B. R. Ross.

Taxidea americana, Waterh.—AMERICAN BADGER.—Western United States and Pacific Slope.

12471. Mounted. Colorado. Chas. E. Aiken. Jan. 15, 1876.

Mephitis mephitica, (Shaw) Baird.—COMMON SKUNK.—Eastern United States.

4348. Mounted. Washington, D. C. C. Drexler.
12522. Mounted. Golden, Col. C. E. Aiken.
1071. Mounted. Middleboro, Mass. J. W. P. Jenks.
4127. Mounted. Lynn, Mass. George Welch.
1070. Mounted. (Male.) Middleboro, Mass. J. W. P. Jenks. Dec. 3, 1855.

Mephitis mexicana, Gray.—MEXICAN SKUNK.—Mexico.

8566. Mounted. Orizaba, Mex. Mr. Botteni.

Spilogale zorilla, (Linn.) Coues.—LITTLE STRIPED SKUNK.—Western United States and Pacific Slope.

1188. Mounted. Santa Clara, Cal. Dr. J. S. Newberry. Nov., 1855.

Conepatus mapurito, (Gmelin) Coues. — WHITE-BACKED SKUNK.—Southwestern United States.

790 — 1886. Skin. Western Texas. Capt. J. Pope, U. S. A.

LUTRINÆ.

Lutra canadensis, Sab.—AMERICAN OTTER.—North America generally.

3280. Mounted. Steilacoom, Wash. Ter. George Gibbs.
5145 ÷ 4456. Mounted. Washington, D. C. National Institution.

ENHYDRINÆ.

Enhydra marina, Fleming.—SEA OTTER.—Pacific Coast of the United States.

9457. Mounted. (Adult.) Alaska. Dr. T. T. Minor.
9458. Mounted. Alaska. Dr. T. T. Minor.

URSIDÆ.

Ursus horribilis, Ord.—GRIZZLY BEAR.—Western United States and Pacific Slope.

12308. Mounted. (16 years old.) Laramie, Wyoming. Major Twiss. (Confined in the Government Insane Hospital, Washington, from 1858 to 1874.)

Ursus americanus, Pallas.—BLACK BEAR.—United States generally.

12380. Mounted. Northern Michigan. John Wallace.

Thalarctos maritimus, (Linn.) Gray.—WHITE or POLAR BEAR.—Northern America, Europe and Asia.

12379. Mounted. Greenland. John Wallace.

PROCYONIDÆ.

Procyon lotor, (Linn.) Storr.—RACCOON.—United States generally.

5148. Mounted. National Institution.
5147. Mounted. National Institution.
26789. Mounted. Wyoming, N. Y. H. A. Ward. Rochester, N. Y.

Nasua fusca, .—COATIMUNDI.—Texas.

12757. Mounted. Brownsville, Texas. Dr. J. C. Merrill, U. S. A.

PINNIPEDIA.

OTARIIDÆ.

Callirhinus ursinus, (Schreber) Gray.—FUR SEAL.—North Pacific Ocean and Bering's Sea.

12918–34. Mounted. (Group of 17.) Prybilov Islands, Alaska. Alaska Commercial Company, San Francisco.
12935. Mounted. Alaska. H. W. Elliott.

Eumetopias Stelleri, (Fischer) Gray.—SEA LION.—Pacific Coast.

12489. Mounted. (Female.) Prybilov Islands, Alaska. Alaska Commercial Company, San Francisco.
12488. Mounted. (Male.) Prybilov Islands, Alaska. Alaska Commercial Co., San Francisco.
12936. Mounted. (Young.) North Pacific.

Zalophus Gilliespii, (Macbain) Gill.—THE SEA DOG.—Pacific Coast.

12937. Mounted. Southern California. Capt. Baker.

PHOCIDÆ.

PHOCINÆ.

Phoca vitulina, Linn.—THE COMMON SEAL; HARBOR SEAL.—North Atlantic.

12453. Cast. Provincetown, Mass. 1875.
623. Photograph. (Young.) U. S. Fish Commission.
624. Photograph. U. S. Fish Commission.

Phoca Richardsii, (Gray) Gill.—LEOPARD SEAL.—North Pacific.

3742. Mounted. California.
12494. Mounted. Adakh Id. Alaska. W. H. Dall.

Pagophilus grœnlandicus, (Müll.,) Gray.—HARP SEAL.—Arctic Seas.

5853. Mounted. Sable Island, N. S. P. W. Dodd.
8122. Mounted. Franklin Harbor, Arctic Seas. R. McFarlane.
5851. Mounted. Sable Island, N. S. P. W. Dodd.
12040. Mounted. St. John's, N. F. Rev. M. Harvey.
5852. Mounted. Sable Island, N. S. P. W. Dodd.
12039. Mounted. St. John's, N. F. Rev. M. Harvey.
12038. Mounted. St. John's, N. F. Rev. M. Harvey.

Erignathus barbatus, (O. Fabricius) Gill.—SQUARE-FLIPPER SEAL.—Arctic Seas.

12422. Skin. Newfoundland. Government of Newfoundland.

Histriophoca equestris, (Pallas) Gill.—BANDED SEAL.—Pacific Coast, Arctic Seas.

7580. Skin (in collection of Furs). Cape Romanzoff. W. H. Dall.

Pusa gryphus, (O. Fabricius) Gill.—GRAY SEAL.—Atlantic Coast.

8694. Mounted. Seeland. Zoological Museum, Copenhagen.

CYSTOPHORINÆ.

Cystophora cristata, (Erxl.) Nilsson.—HOODED SEAL.—Atlantic Coast.

12043. Mounted. St. John's, N. F. Rev. M. Harvey.

Macrorhinus angustirostris, Gill.—SEA ELEPHANT; ELEPHANT SEAL.—Pacific Coast.

12441. Mounted. (Male.) California. Capt. C. M. Scammon.

ROSMARIDÆ.

Rosmarus obesus, (Illig.) Gill.—WALRUS.—North Atlantic.

11870. Mounted. Greenland. Dr. I. I. Hayes.

Rosmarus Cookii, (Fremery) Gill.—WALRUS.—Northern Pacific.

12493. Mounted. Prybilov Islands, Alaska. Alaska Commercial Co., San Francisco.

ORDER, UNGULATA.

BOVIDÆ.

BOVINÆ.

Bison americanus, (Gmelin) Gray.—AMERICAN BUFFALO.—Plains between Rocky Mountains and Missouri River.

12919. Mounted. Colorado. C. E. Aiken.

Ovibos moschatus, Blainville.

12298. Mounted. (Female.) Arctic Coast, H. B. T. W. L. Hardestie. Jan. 23, 1875. Also skeleton of same animal.
12297. Mounted. (Male.) Arctic Coast, H. B. T. W. L. Hardestie. Jan. 23, 1875. Also skeleton of same animal.
6255. Mounted. (Male.) Ft. Good Hope, H. B. T. J. S. Onion.

ANTILOPINÆ.

Mazama montana, (Ord) Gill.—MOUNTAIN GOAT.—Northern Rocky Mountains of the United States and British America.

11894. Mounted. (Male.) Montana. W. F. Wheeler and J. Armitage.
11893. Mounted. Washington Territory. U. S. Northern Boundary Survey.

OVINÆ.

Ovis montana, Cuvier.—BIGHORN; MOUNTAIN SHEEP.—Rocky Mountain regions.

11891. Mounted. (Male.) Ft. Fetterman, Dakota. James Stevenson, U. S. Geol. Survey.
1608. Horns. H. B. Möllhausen.

ANTILOCAPRIDÆ.

Antilocapra americana, Ord.—PRONGHORN ANTELOPE or CABREE.—Plains west of Missouri from Lower Rio Grande to Saskatchewan.

2034. Mounted. (Male.) Yellowstone River. Dr. F. V. Hayden.
2471. Horns. Ft. Chadbourne, Texas. Dr. Swift, U. S. A.
6914. Horns. Ft. Whipple, Arizona Ty. Dr. Elliott Coues, U. S. A.
5084. Horns. Upper Missouri.?

CERVIDÆ.

Alces machlis, (Linn.) Gray.—MOOSE.—Northwestern United States.

11868. Mounted. (Adult male.) Nova Scotia. Geo. A. Boardman.
12542. Mounted. (Adult male.) Nova Scotia. Mr. Jack.
11861. Mounted. (Young calf.) Nova Scotia. Dr. Bernard Gilpin.
857. Antlers. Maine. General S. Churchill, U. S. A.
——. Antlers. Adirondacks, N. Y. Henry J. Biddle.

Tarandus rangifer, J. Brookes, subspecies **caribou,** Aud. & Bach.—WOODLAND CARIBOU.—Northeastern North America.

12473. Mounted. Houlton, Me. Rev. R. R. McLeod.
12407. Mounted. Houlton, Me. Rev. R. R. McLeod.
11865. Mounted. Lake Superior. J. Barnston.
3289. Antlers. (Female.) Nelson River.
3290. Antlers. (Female.) Nelson River.

Tarandus rangifer, (Br.) subsp. **grœnlandicus,** Br.—BARREN GROUND CARIBOU.—Arctic America.

6255. Mounted. Arctic America.
905. Antlers. North Greenland. S. Sternberg.
903. Antlers. North Greenland. S. Sternberg.
6782. Antlers. Plover Bay. Capt. C. M. Scammon, U. S. R. M.
7539. Antlers. Yukon River. W. H. Dall.
4636. Antlers. Port Foulke, N. Greenland. Dr. I. I. Hayes.

Cervus canadensis, Erxl.—AMERICAN ELK.—Northern North America.

12474. Mounted. Ft. Sanders, Wyoming. Col. A. G. Brackett, U. S. A.
4457. Antlers. Elk Co., Penna. Prof. S. S. Haldeman.
2911. Antlers. Ft. Berthold, Missouri River. Lt. Warren, U. S. A., Dr. F. V. Hayden.
867. Antlers. Utah. Col. O. Cross, U. S. A.
2579. Antlers. Platte River. Lt. Bryan, U. S. A.
3552. Antlers. Ft. Tejon, Lower Cal. John Xantus.
3551. Antlers. Ft. Tejon, Cal. John Xantus.
840. Antlers. Ft. Union, Mo. A. Culbertson.
761. Antlers. Ft. Union, Mo. A. Culbertson.
760. Antlers. Ft. Union, Mo. A. Culbertson.
2916. Antlers. Ft. Berthold, Missouri River. Lt. Warren, U. S. A., Dr. F. V. Hayden.
2905. Antlers. Ft. Berthold. Dr. F. V. Hayden.
2903. Antlers. Ft. Berthold. Dr. F. V. Hayden.
2910. Antlers. (Male.) Ft. Berthold. Dr. F. V. Hayden.
3486. Antlers. Oregon. U. S. Expl. Exped. Capt. Wilkes, U. S. N.
3487. Antlers. Oregon. U. S. Expl. Exped. Capt. Wilkes, U. S. N.

Cariacus virginianus, (Boddært) Gray.—VIRGINIA DEER.—United States east of the Missouri.

12461. Mounted. Cumberland, Md. D. P. Welpley. Dec. 26, 1875.
1889÷2587. Mounted. (Young female.) Medicine Bow River, Ark. W. S. Wood. Sept. 6, 1856.
12349. Mounted. (Albino.) Peshtigo, Wis. J. H. Leavenworth.
2909. Antlers.
763. Antlers. (Male.) Lewisburg, Pa. J. C. Barber.
4174. Antlers.
668. Antlers. (Male.) Cumberland, Md.
3386. Antlers. (Male.) Ft. Mason, Tex. Maj. G. H. Thomas.
914. Antlers. (Male.) Washington, D. C.
961. Antlers. (Male.) Arkansas. J. M. Stanley.

Cariacus virginianus, (Boddært) Gray—Continued.

3383. Antlers. (Male.) Ft. Mason, Tex. Maj. G. H. Thomas.
3387. Antlers. (Male.) Ft. Mason, Tex. Maj. G. H. Thomas.
896. Antlers. St. Louis, Mo. J. S. Bowman.
3388. Antlers. (Male.) Ft. Mason, Tex. Maj. G. H. Thomas.
667. Antlers. (Male.) Cumberland, Md.
3032. Antlers. (Male.) Essex Co., N. Y.
895. Antlers. (Male.) St. Louis, Mo. J. S. Bowman.
9843. Antlers. Near Denver, Colo. E. Palmer.
5077. Antlers. (Male.) Washington, D. C.
5083. Antlers. Upper Missouri?

Cariacus virginianus, (Bodd.) Gray, *var.* **mexicanus.**—VIRGINIA DEER.

11859. Mounted. Talamanca, Costa Rica. Prof. W. M. Gabb.

Cariacus macrotis, (Say) Gray.—MULE DEER.—Central North America.

11864. Mounted.
12583. Mounted. Cheyenne, Wyo. Capt. J. M. Gilliss, U. S. A.
6315. Antlers. Prescott, Ariz. Dr. E. Coues.
831. Antlers. Big Sioux.? T. Culbertson.
4175. Antlers.
6918. Antlers. Ft. Laramie. Col. W. O. Collins.
3682. Antlers. Mountains of New Mexico. Dr. J. S. Newberry.

Cariacus columbianus, (Rich.) Gray.—COLUMBIA BLACK-TAILED DEER.—Pacific Slope.

8154. Antlers. Puget Sound. J. G. Swan.
3203. Antlers. Whidby's Island, Puget Sound, W. T. Dr. Geo. Suckley.
5080. Antlers. Puget Sound. Dr. C. B. Kennerly.
3204. Antlers. Whidby's Island, Puget Sound. Dr. Geo. Suckley.

Cervus dama, Linn.—FALLOW DEER (introduced).

1200. Antlers. Park, Clarke Co., Va. Col. J. Fuley.
2257. Antlers. Clarke Co., Va. Col. J. Fuley.

DICOTYLIDÆ.

Dicotyles torquatus, Cuv.—PECCARY.—Red River, Arkansas, and South.

12346. Mounted. Talamanca, Costa Rica. Talamanca Exped. Prof. W. M. Gabb.

ORDER, SIRENIA.

TRICHECHIDÆ.

Trichechus manatus, Linn.—MANATEE.—Florida, West Indies, and N. E. South America.

12295. Mounted. Florida. P. T. Barnum.
16037. Skeleton. Florida. H. A. Ward.

Order, CETE.

DELPHINIDÆ.

DELPHINAPTERINÆ.

Delphinapterus catodon, (Linn.) Gill.—White-fish or White Whale.—Arctic and Subarctic Seas (ascending large rivers).

12490. Cast. Gulf of St. Lawrence. G. R. Renfrew & Co., Quebec.
16038. Skeleton. Gulf of St. Lawrence. G. R. Renfrew & Co.
389. Photograph. U. S. Fish Commission.

Monodon monoceros, Linn.—Narwhal.—Arctic Seas.

15304. Tusk. Greenland. Purchased from George Y. Nickerson.

DELPHININÆ.

Leucorhamphus borealis, (Peale) Gill.—Right-whale Porpoise.—Pacific Coast.

——. Skeleton.

Delphinus Bairdii, Dall.—Baird's Porpoise.—California Coast.

16042. Skeleton. California. W. H. Dall.
15403. Skull. San Gabriel River, Cal. Lieut. Bergland, U. S. A.

Delphinus bombifrons, Cope.—Porpoise.—Atlantic Coast.

12481.? Cast. New York Harbor. John Wallace.

Tursiops erebennus, (Cope) Gill.—Porpoise.—Atlantic Coast.

15786. Skeleton. Rockaway, Long Id. Alfred Lawrence.

Tursiops Gillii, Dall.—Cow-fish.—Pacific Coast.

16043. Skeleton. California. W. H. Dall.

Lagenorhynchus perspicillatus, Cope.—Skunk Porpoise.—Eastern Coast.

12305. Cast. Cape Cod. Vinal N. Edwards.

Lagenorhynchus obliquidens, Gill.—Striped or Common Porpoise.—Pacific Coast.

14329. Skeleton. California. C. M. Scammon.

Lagenorhynchus gubernator, Cope.—Eastern Coast.

——. Cast. Casco Bay, Me. U. S. Fish Commission.

Lagenorhynchus leucopleurus, (Raasch) Gray.—Cow-fish.—Eastern Coast.

12939. Cast. Cape Cod, Mass. U. S. Fish Commission.

Lagenorhynchus thicolea, Gray.—PORPOISE.—West coast of North America.

Orca atra, Cope.—KILLER.—Pacific Coast.

13018. Jaw. California. Capt. C. M. Scammon.

Orca gladiator, (Bonnaterre) Gray.—KILLER.—Atlantic Coast.

11918. Skull. South Atlantic. S. F. Baird.

Phocæna vomerina, Gill.—BAY PORPOISE.—Pacific Coast.

16044. Skeleton. California. W. H. Dall.

Phocæna lineata, Cope.—STRIPED PORPOISE.—Atlantic Coast.

621. Photograph. U. S. F. C.

Phocæna brachycion, Cope.—THE SNUFFING PIG or HERRING HOG.—Atlantic Coast.

12302. Cast. Cape Cod. Vinal N. Edwards.

GLOBICEPHALINÆ.

Globicephalus Scammoni, Cope.—BLACK-FISH.—Pacific Coast.

9076. Skull. California. Capt. C. M. Scammon.

Globicephalus intermedius, (Harlan) Gray.—BLACK-FISH.—Atlantic Coast.

12479. Cast. (Fœtus.) Cape Cod. U. S. Fish Commission.
12480. Plaster cast, (7 feet.) Cape Cod. Edwards. Nov. 14, 1874.
12480. Cast.
12340. Cast 351. Cast of head. South Dennis, Mass. U. S. Fish Commission. 1875.
12341. Cast 352. Cast of head. South Dennis, Mass. U. S. Fish Commission. 1875.

Grampus griseus, (Cuv.) Gray.—GRAMPUS; COW-FISH.—North Atlantic.

15771 ÷ 12759, 508. Cast. Dec. 2, 1875.
15772 ÷ 12760, 503. Skulls. Nov. 29, 1875.
15773 ÷ 12761, 506. Cast of head and cast of whole. Nov. 30, 1875.
506 A. Cast. (Over entrance.)
622. Photograph. U. S. Fish Commission.
12940. Cast of head. Cape Cod, Mass. V. N. Edwards.
12941. Cast of head. Cape Cod, Mass. V. N. Edwards.
12942. Cast of head. Cape Cod, Mass. V. N. Edwards.

Grampus Stearnsii, Dall.—WHITE-HEADED or MOTTLED GRAMPUS.—Pacific Coast.

13021. Skeleton. California. W. H. Dall.

ZIPHIIDÆ.

ZIPHIINÆ.

Mesoplodon Sowerbiensis, (Blainv.,) Gervais.—SOWERBY'S WHALE.—Atlantic Coast.

ANARNACINÆ.

Anarnacus semijunctus, (Cope) Gill.—BOTTLE-HEAD WHALE.—Atlantic Coast.

PHYSETERIDÆ.

PHYSETERINÆ.

Physeter macrocephalus, Linn.—SPERM WHALE.—Tropicopolitan Seas.

25052. Iron model. Made by captain of whaling ship. J. H. Thompson. New Bedford, Mass.
16046. Jaws. U. S. Fish Commission.
16047. Jaws. National Institute.
25004. Wooden model. Capt. Benj. Russell. New Bedford, Mass.

KOGIINÆ.

Kogia Floweri, Gill.—PORPOISE SPERM WHALE.—Pacific Coast.

8016. Lower jaw. Lower California.

BALÆNOPTERIDÆ.

AGAPHELINÆ.

Agaphelus gibbosus, (Cope) Cope.—SCRAGG WHALE.—Atlantic Ocean.

Rhachianectes glaucus, Cope.—GRAY WHALE.—Pacific Ocean.

13803. Skull. California. W. H. Dall.

MEGAPTERINÆ.

Megaptera versabilis, Cope.—HUMPBACK WHALE.—Pacific Coast.

13804. Vertebra. Aleutian Islands. W. H. Dall.

Megaptera osphyia, Cope.—HUMPBACK WHALE.—Atlantic Coast.

Eschrichtius robustus, Lilljeborg.—GRÄSÖ WHALE.—Atlantic Coast.

BALÆNOPTERINÆ.

Sibbaldius tectirostris, Cope.—FINBACK WHALE.—Atlantic Ocean.

16045. Skeleton. Cape Cod. U. S. Fish Commission.

Sibbaldius tuberosus, Cope.—FINBACK WHALE.—Atlantic Ocean.

Sibbaldius borealis, (Fischer) Geoffroy.—SULPHUR-BOTTOM WHALE.—Atlantic Ocean.

16039. Skeleton. Cape Cod. U. S. Fish Commission.

Sibbaldius sulfureus, Cope.—SULPHUR-BOTTOM WHALE.—Pacific Ocean.

Balænoptera rostrata, (Müller) Gray.—GRAMPUS.—Atlantic Coast.

Balænoptera velifera, Cope.—FINBACK WHALE; OREGON FINNER.—Pacific Ocean.

Balænoptera Davidsonii, Scammon.—SHARP-HEADED FINNER WHALE.—Pacific Coast.

16040. Skeleton. California. Capt. C. M. Scammon.

BALÆNIDÆ.

Balæna mysticetus, Linn.—BOWHEAD WHALE.—Arctic Seas.

12938. Model in plaster. From drawings and measurements of Capt. C. M. Scammon.
16041. Jaws. Arctic Ocean. U. S. Fish Commission.

Eubalæna Cullamach, (Chamisso) Cope.—PACIFIC RIGHT WHALE.—North Pacific.

12988. Model in plaster. From drawings and measurements of Capt. C. M. Scammon.

Eubalæna cisarctica, Cope.—RIGHT WHALE.—Atlantic Coast.

ORDER, INSECTIVORA.

TALPIDÆ.

Scalops aquaticus, (Linn.) Cuv.—Eastern United States.

3965. Mounted. (Male.) Washington, D. C. G. Exall.
5830. Mounted. (Female.) Washington, D. C. G. Exall.
3966. Mounted. District of Columbia, 1858. C. Drexler.
3964. Mounted. (Albino.) Virginia, October 30, 1846. D. F. Kent.

Scalops argentatus, Aud. & Bach.—SILVERY MOLE.—Western United States.

11351. Alcoholic. Mt. Carmel, Ill. R. Ridgway.
783. Mounted. Tremont, Ill. W. J. Shaw.

Scapanus Townsendii, (Bachman) Pomel.—OREGON MOLE.—Pacific Slope.

3963. Mounted. Oregon. T. R. Peale. U. S. Exploring Expedition.
1963. Mounted. Ft. Steilacoom, Wash. Ter. Dr. George Suckley, U. S. A.

Scapanus Breweri, (Bachman) Pomel.—HAIRY-TAILED MOLE.—Eastern United States.

823. Mounted. Cleveland, Ohio. Dr. J. P. Kirtland.

Condylura cristata, (Linn.) Illiger.—STAR-NOSED MOLE.—Northern cismontane States.

3968. Mounted. Washington, D. C.

ORDER, GLIRES.

SCIURIDÆ.

Sciurus cinereus, Linn.—FOX SQUIRREL.—Eastern United States.

4143. Mounted. District of Columbia. C. Drexler.
321 ÷ 1240. Mounted. Western Missouri. Dr. P. R. Hoy. 1854.
4044. Mounted. (Male.) District of Columbia. A. R. Jenkins.

Sciurus carolinensis, Gmelin.—GRAY SQUIRREL.—United States.

4042. Mounted. District of Columbia. S. F. Baird.
334 ÷ 1252. Mounted. Racine, Wis. Rev. A. C. Barry.
332 ÷ 1250. Mounted. Racine, Wis. Dr. P. R. Hoy.
11071. Mounted. New York. J. G. Bell.
5844. Mounted. Washington, D. C. J. K. Townsend.

Sciurus fossor, Peale.—CALIFORNIA GRAY SQUIRREL.—Pacific Slope.

4040. Mounted. (Male.) California. Dr. Heerman.

Sciurus Abertii, Woodhouse.—TUFT-EARED SQUIRREL.—Southern Colorado, New Mexico, &c.

12576. Mounted. (Male.) Colorado Springs, Colo. C. E. Aiken.
12578. Mounted. (Male.) Colorado Springs, Colo. C. E. Aiken.
2430. Mounted. San Francisco Mts., N. M. Dr. Woodhouse.

Sciurus hudsonius, Pallas.—RED SQUIRREL; CHICKAREE.—Cismontane United States and Alaska.

12435. Mounted. (Male.) Hartford, Minn. J. H. Batty.
9241. Mounted. New Brunswick. G. A. Boardman.
3264. Mounted. Laramie Peak. J. Henman.

Tamias striatus, (Linn.) Cuv.—CHIPMUNK.—Eastern United States.

4013. Mounted. Washington, D. C. A. J. Falls.

Tamias quadrivittatus, (Say) Rich.—MISSOURI STRIPED SQUIRREL.—Pacific Slope, in mountains.

4661. Mounted. Yreka, Cal. W. Vielle.
4662. Mounted. Yreka, Cal. W. Vielle.

Tamias lateralis, (Say) Allen.—SAY'S STRIPED SQUIRREL.—Rocky Mountains, from Mexico northward.

9320. Mounted. Carson City, Nevada. U. S. Survey of Fortieth Parallel. Robert Ridgway. March, 1868.

Spermophilus grammurus, (Say) Bach.—CALIFORNIA GROUND SQUIRREL.—Western Texas and New Mexico west to Sierra Nevada Mountains.

1046÷2215. Mounted. Los Nogales, Sonora. Maj. W. H. Emory, U. S. A.

Spermophilus grammurus, (Say) Bach., *var.* **Beechyi.**—CALIFORNIA GROUND SQUIRREL.—Cala. and Lower Cala., west of Sierra Nevadas.

469. Mounted. Tejon Valley, Cal. Dr. A. L. Heerman.
470. Mounted. Tejon Valley, Cal. Dr. A. L. Heerman.

Spermophilus Harrisi, Aud. & Bach.—HARRIS' GROUND SQUIRREL.—The Great Interior Basin and Lower California.

471÷1600. Mounted. Mohave Desert. Lieut. R. S. Williamson.

Spermophilus Franklini, (Sabine) Rich.—GRAY GOPHER.—Northern Illinois, northward to the Saskatchewan.

985. Skin. Racine, Wis. Dr. P. R. Hoy.

Spermophilus tereticaudis, Aud. & Bach.—ROUND-TAILED GROUND SQUIRREL.—Arizona.

1584. Skin. Fort Yuma, Cal. Maj. G. H. Thomas.

Spermophilus tridecem-lineatus, (Mitchell) Aud. & Bach.—STRIPED GOPHER; PRAIRIE SQUIRREL.—The prairies of the United States.

437÷1303. Mounted. Head of Arkansas River. Capt. E. G. Beckwith.

Spermophilus mexicanus, (Erxleben) Wagner.—MEXICAN GROUND SQUIRREL.—Southwestern Texas and Southern New Mexico, southeastward into Mexico.

3662. Mounted. Eagle Pass, Texas. Dr. W. S. King, U. S. A.

Spermophilus Parryi, Rich.—PARRY'S MARMOT.—Northern parts of the Continent, from Hudson's Bay to Behring's Strait.

8736. Mounted. Pelly Lake. R. R. MacFarlane. June 21, 1864.
5789. Mounted. Lockhart River, H. B. T. B. R. Ross. July 4, 1860.
9366. Mounted. Kodiak. F. Bischoff. Sept. 13, 1868.

Spermophilus spilosoma, Bennett.—SONORA GROUND SQUIRREL.—Eastern base of the Rocky Mountains north to Western Wyoming.

2620. Fort Thorn, N. Mex. Dr. T. C. Henry.

Spermophilus Richardsoni, (Sabine) Baird.—YELLOW GOPHER.—Plains of the Saskatchewan southward to the Upper Missouri.

12360. Skin. Fort Saunders, Wyo. Col. A. G. Brackett.

Spermophilus Townsendi, Bach.—TOWNSEND'S GROUND SQUIRREL.—Plains of Columbia.

3775. Camp Lloyd, Utah. Capt. J. H. Simpson, U. S. A.

Spermophilus annulatus, Aud. & Bach.—RINGED GROUND SQUIRREL.—Plains of Colima, Mexico.

——. Skins.

Cynomys ludovicianus, (Ord) Baird.—PRAIRIE DOG.—Great plains east of the Rocky Mountains.

4057. Mounted. (Female.) Platte River, Ark. Dr. Woodhouse.
7770 ÷ 345. Mounted. (Male.) Ft. Larned. Dr. E. Coues. May 31, 1864.
11458. Mounted. Colorado. J. H. Batty.
9559. Mounted. Soda Springs, Colo. Jas. Stevenson.

Cynomys columbianus, (Ord) Allen.—SHORT-TAILED PRAIRIE DOG.—The parks and plains within and west of the Rocky Mountains to the plains of Columbia.

5849. Mounted. Fort Bridger, Utah. C. Drexler.

Arctomys monax, Linn.—WOODCHUCK.—Eastern North America.

26788. Mounted. Wyoming, N. Y. H. A. Ward, Rochester, N. Y.

Arctomys caligatus, Eschscholtz.—NORTHWESTERN MARMOT.—Puget's Sound northward, west of the Rocky Mountains.

9493. Mounted. Ft. Kenag, Alaska. F. Bischoff. May 16, 1869.
12485. Mounted.

Arctomys flaviventer, Aud. & Bach.—YELLOW-FOOTED MARMOT.—Rocky Mountains west of the Pacific Coast.

8834. Mounted. Fort Anderson. R. McFarlane.
12753. Mounted. Near Fort Ellis, Montana. W. B. Platt.

HAPLODONTIDÆ.

Haplodontia leporina, Rich.—SEWELLEL; SHOWT'L.—Pacific Slope (especially about Puget's Sound).

1966. Mounted. (Male.) Ft. Steilacoom, Wash. Ter. Dr. Geo. Suckley.
4046. Mounted. Puget's Sound. Ex. Ex.

CASTORIDÆ.

Castor canadensis, Kuhl.—AMERICAN BEAVER.—United States generally.

9724. Mounted. (Young.) Henry Fork, G. R. Dr. F. V. Hayden. Oct., 1870.

GEOMYIDÆ.

Geomys bursarius, Rich.—POUCHED or POCKET GOPHER.—Missouri to Minnesota and Nebraska.

91. Mounted. Columbia River, Oregon. Acad. Nat. Sci. Phila.

Geomys tuza, (Ord,) Coues.—FLORIDA SALAMANDER.—Southeastern States.

11905. Skins. Jacksonville, Fla. G. Brown Goode.

Geomys castanops, Baird.—TEXAS POUCHED GOPHER.—Texas and New Mexico.

4007. Mounted. Bent's Fork. Lt. Abert.

Thomomys talpoides, (Rich) Baird.—CALIFORNIA GOPHER.—Northern and Western North America.

366÷1280. Mounted. Monterey, California. Lt. W. P. Trowbridge.

Thomomys clusius, Coues.—SMALL-FOOTED POUCHED GOPHER.—Rocky Mountains.

——. Skins. Ft. Bridger, Utah.

MURIDÆ.

Mus decumanus, Pallas.—BROWN RAT.—United States generally. (Introduced.)

5847. Mounted. Washington, D. C.

Mus rattus, Linn.—BLACK RAT.—United States generally, but rare. (Introduced.)

12÷921. Skin. Foxburg, Pa. S. F. Baird.

Mus musculus.—COMMON MOUSE.—United States generally. (Introduced.)

4051. Mounted. (Albino.) District of Columbia.

Hesperomys leucopus, Wagner.—WHITE-FOOTED MOUSE.—Northern United States west of the Mississippi River.

1358. Mounted. Halifax, N. S. A. Downes.

Neotoma floridana, Say & Ord.—FLORIDA RAT; WOOD RAT.—Atlantic Slope northward to New York.

4334. Mounted. Hillsboro, Va. N. Janney.

Neotoma cinerea, (Ord) Baird.—ROCKY MOUNTAIN RAT.—Pacific Slope and Upper Missouri.

5665. Mounted. Fort Liard, Hudson's Bay Terr. Ross and Hardesty.

Fiber zibethicus, Cuv.—MUSK RAT.—United States generally.

4060. Mounted. (Female.) District of Columbia. R. O. Pollard.

HYSTRICIDÆ.

Erethizon dorsatus, (Linn.) Flem., *var.* **dorsatus.**—WHITE-HAIRED PORCUPINE.—Northern United States.

11086. Mounted. Maine. John Wallace.
12402. Mounted. (Female.) Mt. Washington, N. H. C. J. King. July 3, 1875.

Erethizon dorsatus, (Linn.) F. Cuv., *var.* **epixanthus.**—YELLOW-HAIRED PORCUPINE.—Pacific Slope and Upper Missouri region.

9745. Mounted. Fort Bridger, Wyoming. Dr. F. V. Hayden, U. S. Geologist. Sept. 29, 1870.

SUBORDER DUPLICIDENTATA.

LEPORIDÆ.

Lepus timidus, Fab., *var.* **arcticus.**—POLAR HARE.—Arctic and Subarctic America.

1356. Mounted. (Young.) Newfoundland. John Downes. Summer 1856.
5181. Mounted. Newfoundland. J. R. Willis.
353. Mounted. Newfoundland. J. G. Bell. Winter 1854.

Lepus americanus, Erxl., *var.* **americanus,** Allen.—NORTHERN HARE; WHITE HARE.—Northeastern North America.

12478. Mounted. Cumberland, Md. D. P. Welpley.

Lepus americanus, Erxl.—NORTHERN HARE; WHITE RABBIT.—Alaska and British North America east of the Rocky Mountains.

4430. Mounted. (Male.) Ft. Liard, H. B. T. Robert Kennicott.

Lepus americanus, *var.* **virginianus.**—VIRGINIA HARE.—Eastern United States south of Nova Scotia.

11067. Mounted. J. G. Bell.
959. Mounted. Middleboro, Mass. J. W. P. Jenks.

Lepus americanus, Erxl., *var.* **Washingtonii.**—RED HARE.—West of Rocky Mountains from Columbia River into British Columbia.

3817. Mounted. Chiloweyuck Depot, Oregon. Dr. C. B. Kennerly, U. S. A. June, 1859.

Lepus americanus, Erxl., *var.* **Bairdii.**—BAIRD'S HARE.—Higher parts of Rocky Mountains.

4265. Mounted. (Female.) Wind River Mountains. Dr. F. V. Hayden.
5882. Mounted. Head of Flathead River, Washington Ty. Dr. C. B. Kennerly, N. W. Boundary Survey. Winter 1860.
3791. Mounted. Ft. Bridger, Utah. J. H. Simpson.
303. Mounted. Shoalwater Bay. Dr. J. G. Cooper, Pacific R. R. Survey. March 5, 1854.

Lepus campestris, Bach.—PRAIRIE HARE.—Central plains of North America.

1552. Mounted. Upper Missouri. Dr. F. V. Hayden.
4240. Mounted. (Male.) Deer Creek. Dr. F. V. Hayden. Dec. 18, 1859.
69÷972. Mounted. Ft. Union, Neb. T. Culbertson.
12013. Mounted. (Male.) Frenchman's Creek, Montana. Dr. E. Coues, U. S. A., Northern Boundary Survey. July 5, 1874.

Lepus callotis, Wagler.—JACKASS HARE; JACK RABBIT.—Southwestern United States.

1170. Mounted. Klamath Lake. Dr. J. S. Newberry.
8477. Mounted. (Female.) Ft. Whipple, Arizona. Dr. E. Coues, U. S. A. May 17, 1865.
450. Mounted. Red River, Ark. Capt. Marcy.

Lepus californicus, Gray.—CALIFORNIA HARE.—California.

11070. Mounted. California. J. G. Bell.
1980. Mounted. Petaluma, California. E. Samuels.
12586. Mounted. Cape St. Lucas. John Xantus.

Lepus sylvaticus, Bach.—GRAY RABBIT.—Eastern United States.

12483. Mounted. Fairfax Co., Va. G. Brown Goode.
11069. Mounted. New York? J. G. Bell.
11068. Mounted. New York? J. G. Bell.
4017. Mounted. New York. J. G. Bell.

Lepus Bachmani, Waterhouse.—BACHMAN'S HARE.—Texas.

234;243. Skins. Brownsville, Texas. Couch and Van Vliet.

Lepus sylvaticus, Bach., *var.* **Audubonii.**—AUDUBON'S HARE.—Southern Arizona and California.

1596. Mounted. San Diego, Cal. Dr. J. F. Hammond. Dec., 1855.
1594. Mounted. (Female.) San Diego, Cal. Dr. J. F. Hammond. Dec. 28, 1856.

Lepus sylvaticus, Bach., *var.* **Nuttalli.**—SAGE RABBIT.—United States west of 97th meridian.

8896. Mounted. (Female.) Camp Grant, Ariz. Edward Palmer. Feb. 20, 1867.

Lepus Trowbridgii, Baird.—TROWBRIDGE'S HARE.—California.

1183. Mounted. Santa Clara, Cal. Dr. J. S. Newberry. Nov., 1855.
2974 ÷ 351. Mounted. Petaluma, Cal. E. Samuels.

Lepus aquaticus, Bach.—WATER RABBIT.—Gulf States.

2306. Mounted. Prairie Mer Rouge, La. James Fairie.
2309. Mounted. Prairie Mer Rouge, La. James Fairie.

Lepus palustris, Bach.—MARSH RABBIT.—Southeastern United States, on lowlands.

4018. Mounted. St. Simon's Island, Ga. Dr. Wilson. 1860.
1256.? Mounted. Society Hill, S. C. M. A. Curtis. 1856.
1621. Mounted. St. Simon's Island, Ga. Dr. S. M. Wilson.

ORDER, EDENTATA.

DASYPODIDÆ.

Tatusia septem-cinctus, (Linn.,) Gray.—ARMADILLO.—Southwestern United States and South.

10197. Mounted. Tobasco, Mexico. C. H. Laszlo.

ORDER, AMARSUPIALI.

DIDELPHIDÆ.

Didelphys virginiana, Shaw.—POSSUM.—United States generally.

12951. Stuffed skins. Family group of nine. Washington, D. C. G. Brown Goode.

II. BIRDS.

From want of space it has not been thought desirable to exhibit a collection of North American birds.

III. REPTILES.

Order, CROCODILIA.

CROCODILIDÆ.

Crocodilus americanus, Seba.—Florida Crocodile.—Southern Florida.

8384. Mounted. Biscayne Bay, Fla. Purchased from H. A. Ward.

Alligator mississippiensis, Daudin.—Alligator.—Southeastern North America.

9980. Cast. Jacksonville, Fla. F. C. Goode.
8543. Cast. Jacksonville, Fla. G. Brown Goode.

Order, TESTUDINATA.

TESTUDINIDÆ.

Testudo carolina, Linn.—Florida Gopher-Tortoise.—Southeastern North America.

9627. Cast. Florida. G. Brown Goode.

Testudo Berlandieri, Agassiz.—Southwestern United States.

8926. Brownsville, Tex. Dr. J. C. Merrill, U. S. A.

EMYDIDÆ.

Malacoclemmys palustris, Gmelin.—Diamond-back Terrapin.—Coast from New York to Texas.

8709. Washington Market. J. W. Milner.
9028. Cast. Mandeville, La. G. Kohn.

Pseudemys rugosa, Shaw.—Red-bellied Terrapin.—New Jersey to Virginia.

8910. Cast. Kinston, N. C. J. W. Milner.

Pseudemys concinna, Leconte.—Florida Terrapin.—Southeastern United States.

8907–8. Cast. Florida. Professor Baird.

Pseudemys mobiliensis,

9023. Cast. Mandeville, La. G. Kohn.

CHELYDRIDÆ.

Macrochelys lacertina, Schw.—ALLIGATOR TURTLE.

9211. Cast. Greenville, Miss. S. W. Ferguson.

Chelydra serpentina, Linn.—SNAPPING TORTOISE.—Canada to Ecuador.

8916. Cast. Washington, D. C. Joseph Palmer.

TRIONYCHIDÆ.

Aspidonectes ferox, Schw.—SOFT-SHELL TURTLE.—Georgia to Western Louisiana.

8708. Cast. Milledgeville, Ga. Tarleton H. Bean.
8899. Florida. Professor Baird.

Aspidonectes spinifer, Les.—SOFT-SHELL TURTLE.—Middle and northern tributaries of the Mississippi and the Saint Lawrence.

8309. Mounted. Rising Sun, Ind.
9614. Alcoholic. Mt. Carmel, Ill. R. Ridgway.

CHELONIIDÆ.

Chelonia mydas, Schw.—GREEN TURTLE.—Atlantic Coast south of Long Island.

8392÷15267. Cast in papier-maché. New York market. E. G. Blackford.

Chelonia virgata, Schw.—PACIFIC GREEN TURTLE.—Pacific Coast.

9639. Cast. San Diego, Cal. G. N. Hitchcock.

Thalassochelys caouana, Linn.—LOGGERHEAD TURTLE.

8386÷15259. Cast. New York market. E. G. Blackford.

Eretmochelys imbricata, Linn.—HAWK'S BILL TURTLE.—Southern Atlantic Coast.

——. Cast. New York market. E. G. Blackford.

Eretmochelys squamata, Linn.—PACIFIC HAWK'S BILL TURTLE.—Pacific Coast.

12388. Shells. Fiji Island. U. S. Expl. Expedition.

SPHARGIDIDÆ.

Sphargis coriacea, Rondelet.—LEATHERBACK TURTLE.—Atlantic Coast to Massachusetts.

8389÷15263. Cast. New York market. E. G. Blackford.

V. FISHES.

Order, PEDICULATI.

MALTHEIDÆ.

Malthe cubifrons, Rich.—Sea Bat.—West Indian Fauna.

16727. Cast. St. Augustine, Fla. Dr. J. M. Laing, U. S. A.
800. Photograph. U. S. Fish Commission.

Malthe vespertilio, (Linn.) Cuv.—Sea Bat.—West Indian Fauna.

12575. Alcoholic specimen. Amazons. British Museum.

LOPHIIDÆ.

Lophius piscatorius, Linn.—Goose Fish; Angler.—Nova Scotia to Cape Hatteras.

15086. Alcoholic specimen. Tompkinsville, N. Y. Copley.
14910. Cast. Wood's Holl, Mass. U. S. Fish Commission. June 22, 1873.
16657. Cast. Wood's Holl, Mass. U. S. Fish Commission.
12, 13, 14, 15. Photographs. U. S. Fish Commission.

ANTENNARIIDÆ.

Pterophryne histrio, (Linn.) Gill.—Mouse-fish.—Pelagic.

20683. Alcoholic specimens. Wood's Holl, Mass. V. N. Edwards.

Order, PLECTOGNATHI.

MOLIDÆ.

Mola rotunda, Cuv.—Sun-fish.—Newfoundland to Cape Hatteras.

15832. Cast. Noank, Conn. U. S. Fish Commission. Sept. 16, 1874.
15833. Cast. Noank, Conn. U. S. Fish Commission. Sept. 16, 1874.
1. Photograph. U. S. Fish Commission.
784. Color sketch. (Richard.) U. S. Fish Commission.

DIODONTIDÆ.

Chilomycterus geometricus, (Linn.) Kaup.—Bur-fish.—South of Cape Cod; West Indian Fauna, &c.

15572. Cast. New York market. E. G. Blackford. Oct. 7, 1875.
15883. Cast. Wood's Holl, Mass. U. S. Fish Commission. Aug. 1, 1873.
523–4–5. Color sketch. (Richard.) U. S. Fish Commission.

Chilomycterus fuliginosus, (De Kay,) Gill.

13938. Alcoholic specimen. Watch Hill, R. I. U. S. Fish Commission. Sept. 18, 1874.

Trichodiodon pilosus, (Mitch.) Bleeker.—HAIRY BOX-FISH.—Cape Cod to Cape Hatteras.

——. Alcoholic specimen. Beesly's Point, N. J. Prof. S. F. Baird. 1854.

TETRODONTIDÆ.

Tetrodon lævigatus, (Linn.) Gill.—RABBIT-FISH.—Cape Cod to Florida.

14867. Cast. Vineyard Sound, Mass. U. S. Fish Commission. July 13, 1874.
2, 3. Photographs. U. S. Fish Commission.

Chilichthys turgidus, (Mitch.) Gill.—SWELL-FISH.—Cape Cod to Florida.

10740. Cast. Wood's Holl, Mass. U. S. Fish Commission.
499. Color sketch. (Richard.) U. S. Fish Commission.
615–16. Color sketch. Prof. Alex. Agassiz.

OSTRACIIDÆ.

Ostracium quadricorne, Linn.—COW-FISH.—West Indian Fauna.

10008. Cast. Bermudas. G. Brown Goode. March, 1872.
664. Color sketch. (Burkhardt.) Florida. Prof. Alex. Agassiz. Alive in Boston Aquarial Garden June, 1860.

Ostracium triquetrum, Linn.—CUCKOLD.—West Indian Fauna.

579–80. Color sketch. (Burkhardt.) Santa Cruz. Prof. Alex. Agassiz; Dr. Jeffries.

Lactophrys trigonus, (Linn.) Poey.—TRUNK-FISH.—West Indian Fauna; occasional in Massachusetts.

20610. Alcoholic specimens. Wood's Holl, Mass. V. N. Edwards.

BALISTIDÆ.

Balistes ringens, Linn.—SPOTTED FILE-FISH.—West Indian Fauna.

581. Color sketch. (Burkhardt.) Island of Sombrero, W. I. Prof. Alex. Agassiz. Sept., 1859.

Balistes vetula, Linn.—OLDWIFE; FILE-FISH.—West Indian Fauna; accidental on coast.

14909. Cast. Wood's Holl, Mass. U. S. Fish Commission. Oct. 8, 1873.
11380. Photograph. U. S. Fish Commission.

Balistes capriscus,

15233. Alcoholic specimen. East Coast. John Sutherland.

Stephanolepis setifer, (Bennet) Gill.—STORER'S FILE-FISH.—Nova Scotia to Florida.

16519. Alcoholic specimen. Wood's Holl, Mass. U. S. Fish Commission. Sept., 1875.
617. Color sketch. (Burkhardt.) Cape Cod. Prof. Alex. Agassiz. Aug., 1859.
498. Color sketch. (Richard.) Wood's Holl, Mass. U. S. Fish Commission. Aug., 1875.

Canthorhinus occidentalis.—West Indian Fauna, &c.

16746. Alcoholic specimen. Chesapeake Bay. Capt. John Evans. Oct., 1875.

Alutera cuspicauda, De Kay.—LONG-TAILED FILE-FISH.—Cape Cod to Florida.

16341. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 13, 1875.
15569. Cast. New York. E. G. Blackford.
15827. Cast. New York market. E. G. Blackford.
15839. Cast. New York market. E. G. Blackford. Oct. 9, 1875.
412-13-14. Color sketches. U. S. Fish Commission.

Ceratacanthus auramtiacus, (Mitch.) Gill.—ORANGE FILE-FISH.—Cape Cod to Florida.

14914. Cast. Wood's Holl, Mass. U. S. Fish Commission. Aug. 14, 1873.
15870. Cast. Wood's Holl, Mass. U. S. Fish Commission. Aug. 14, 1873.
14916. Cast. Wood's Holl, Mass. U. S. Fish Commission. Aug. 14, 1873.
5, 6, 7, 8, and 9. Photographs. U. S. Fish Commission.
500. Color sketch.

ORDER, LOPHOBRANCHII.

HIPPOCAMPIDÆ.

Hippocampus antiquorum, Leach.—SEA-HORSE; HORSE-FISH.—Cape Cod to Cape Hatteras.

21044. Alcoholic specimen. St. George's Banks. G. Brown Goode.

SYNGNATHIDÆ.

Syngnathus Peckianus, Storer.—PIPE-FISH.—Newfoundland to Cape Hatteras.

16492. Alcoholic specimen. Wood's Holl, Mass. U. S. Fish Commission.

Order, TELEOCEPHALI.

HETEROSOMATA.

SOLEIDÆ.

Achirus lineatus, (Linn.) Cuv.—American Sole; Hog Choker.—Cape Cod to Florida.

15743. Cast, (upper side.) Wood's Holl, Mass. U. S. Fish Commission. Feb. 21, 1874.
15743. Cast, (under side.) Wood's Holl, Mass. U. S. Fish Commission. Feb. 21, 1874.
380. Photograph. U. S. Fish Commission.
448. Photograph, (upper side.)
449. Photograph, (under side.)
561. Color sketch. Prof. Alex. Agassiz.

Solea vulgaris, Quensel.—Sole.—Coast of Europe.

12513. Cast. England.
16. Photograph. U. S. Fish Commission.

PLEURONECTIDÆ.

Euchalarodus Putnami, Gill.—Putnam's Flat-fish.—Found only in Salem Harbor.

5368. Alcoholic specimen. Salem, Mass. F. W. Putnam.

Pseudopleuronectes americanus, (Walb.) Gill.—Flat-fish; Winter Flounder.—Nova Scotia to Cape Hatteras.

14911. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 22, 1873.
15692. Cast. Wood's Holl, Mass. U. S. Fish Commission. Dec., 1873.
15709. Cast. Wood's Holl, Mass. U. S. Fish Commission. Feb. 28, 1874.
14891. Cast. Wood's Holl, Mass. U. S. Fish Commission. Feb. 20, 1874.
14913. Cast. Wood's Holl, Mass. U. S. Fish Commission. Feb. 2, 1874.
15934. Cast. Wood's Holl, Mass. U. S. Fish Commission.
18, 19, 20, 21, 22, 380. Photographs. U. S. Fish Commission.
785. Color sketch. (Richard.) U. S. Fish Commission.

Myzopsetta ferruginea, (Storer) Gill.—Rusty Flounder.—Nova Scotia to Cape Cod.

15068. Cast. New York market. E. G. Blackford.
15067. Cast. New York market. E. G. Blackford. March 22, 1875.
23. Photograph. U. S. Fish Commission.
786. Color sketch. (Richard.) U. S. Fish Commission.

Pleuronectes glaber, (Storer) Gill.—Smooth-back Flounder.—Northern New England Coast.

20873. Cast. Portland, Me. Tarleton H. Bean.

Glyptocephalus cynoglossus, (Linn.) Gill.—POLE FLOUNDER.—Maine.

24. Photograph. U. S. Fish Commission.
12385. Alcoholic specimen. Treat's Island, Eastport, Me. U. S. Fish Commission. Aug., 1872.

Lophopsetta maculata, (Mitch.) Gill.—WATERY FLOUNDER; SPOTTED TURBOT.—Cape Cod to Cape Hatteras.

15693. Cast. Wood's Holl, Mass. U. S. Fish Commission.
10652. Cast. Wood's Holl, Mass. U. S. Fish Commission.
25, 26. Photographs. U. S. Fish Commission.
780–1. Color sketch. (Richard.) U. S. Fish Commission.

Chænopsetta ocellaris, (De Kay) Gill.—COMMON FLOUNDER.—Cape Cod to Cape Hatteras.

15177. Cast. Norfolk, Va. U. S. Fish Commission.
10721. Cast. Wood's Holl, Mass. U. S. Fish Commission.
14899. Cast. Block Island, R. I. U. S. Fish Commission. Sept. 24, 1874.
10684. Cast. Wood's Holl, Mass. U. S. Fish Commission.
15176. Cast. Norfolk, Va. U. S. Fish Commission.
27, 28. Photographs. U. S. Fish Commission.
533–4. Color sketch. (Richard.) U. S. Fish Commission.

Chænopsetta oblonga, (Mitch.) Gill.—FOUR-SPOTTED FLOUNDER.—Cape Cod to Cape Hatteras.

10716. Cast. Wood's Holl, Mass. U. S. Fish Commission.
10661. Cast. Wood's Holl, Mass. U. S. Fish Commission.
29, 30. Photographs. U. S. Fish Commission.

Chænopsetta dentata, (Linn.) Gill.—SOUTHERN FLOUNDER.—Cape Hatteras to Florida.

18048. Alcholic specimen. St. John's River, Fla. Professor Baird.

Hippoglossus americanus, Gill.—HALIBUT.—Newfoundland to Cape Hatteras.

15698. Cast. Eastern Mass. U. S. Fish Commission. Feb. 28, 1874.
15705. Cast. Eastern Mass. U. S. Fish Commission. Feb. 28, 1874.
16587. Cast. Boston, Mass. F. H. Johnson. Sept. 24, 1875.
15732. Cast.
31, 32. Photographs. U. S. Fish Commission.
767. Color sketch. (Richard.) U. S. Fish Commission.

Hippoglossoides limandoides, Günther.—SAND DAB.

21037. Alcoholic specimen. Halifax, N. S. U. S. Fish Commission. Sept. 11, 1877.
21818. Alcoholic specimen. Gloucester, Mass. U. S. Fish Commission. July 29, 1878.
14913. Cast. Wood's Holl, Mass. V. N. Edwards. Feb. 2, 1874.

Reinhardtius hippoglossoides, (Walb.) Gill.—GREENLAND TURBOT.—Greenland.

14869. Cast, (upper side.) Newfoundland. E. G. Blackford. Feb., 1874.
14869. Cast. Newfoundland. E. G. Blackford. Feb., 1874.
33. Photograph. U. S. Fish Commission.
21564. Cast. Le Have Bank. U. S. Fish Commission.

Psettichthys melanostictus, Girard.—CALIFORNIA "SPOTTED SOLE."—Coast of California.

16701. Cast. San Francisco, Cal. L. Stone. Jan. 27, 1876.
16699. Cast. San Francisco, Cal. L. Stone. Jan. 27, 1876.
16700. Cast. San Francisco, Cal. L. Stone. Jan. 27, 1876.
16699, 16700, 16701. Alcoholic specimens. San Francisco. U. S. Fish Commission.
36, 39. Photographs. U. S. Fish Commission.
777. Color sketch. U. S. Fish Commission.
754. Color sketch. (Agassiz.) Prof. Alex. Agassiz.

Platichthys stellatus, (Pall.) Gill.—ROUGH FLOUNDER.—Coast of California.

16698. Cast. San Francisco, Cal. L. Stone.
38. Photograph. U. S. Fish Commission.
531–2. Color sketch. (Richard.) U. S. Fish Commission.
657. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

Parophrys vetulus.—"SOLE."—Coast of California.

17064. Alcoholic specimen. San Francisco, Cal. U. S. Fish Commission.
776. Color sketch. (Richard.) U. S. Fish Commission.

Ancylopsetta quadrocellata, Gill.

17123–4. Alcoholic specimens. Charleston, S. C. Prof. S. F. Baird. March, 1877.
17123. Cast. Charleston, S. C. Prof. S. F. Baird. March, 1877.

Rhombus maximus, Will.—TURBOT.—Coasts of Europe.

12511. Cast. England. Middleton, Carman & Co.
35, 391. Photograph. U. S. Fish Commission.

Rhombus lævis, Rondel.—BRILL.—Coasts of Europe.

12512. Cast. England. Middleton, Carman & Co.
34. Photograph. U. S. Fish Commission.

ANACANTHINI.

MACRURIDÆ.

Macrurus rupestris, Bl.—ONION-FISH.—North Atlantic.

15608. Cast. St. George's Banks. E. G. Blackford. Oct. 27, 1875.
785. Color sketch. (Richard.) U. S. Fish Commission.

Macrurus Bairdii, Goode & Bean.—SPIKE-TAIL.

21014. Alcoholic specimen. (Type.) Gulf of Maine. U. S. Fish Commission. Aug. 19, 1877.

GADIDÆ.

Pollachius carbonarius, (Linn.) Bon.—POLLACK.—Greenland to Cape Hatteras.

15971. Cast. Wood's Holl, Mass. U. S. Fish Commission.
16254. Cast. Martha's Vineyard. U. S. Fish Commission. July 30, 1875.
41, 42, 43. Photographs. U. S. Fish Commission.
787. Color sketch. (Richard.) U. S. Fish Commission.

Gadus morrhua, Linn.—COD-FISH.—Polar Regions to Cape Hatteras.

16770. Cast. Irish Sea. Liverpool Free Public Museum.
14902. Cast. New York market. E. G. Blackford. April 3, 1874.
15923. Cast. Portland, Me. U. S. Fish Commission.
44, 45, 381, 392. Photographs. U. S. Fish Commission.
610. Color sketch. Prof. Alex. Agassiz.

Microgadus proximus, (Girard) Gill.—TOM COD.—Coast of California.

16696. Cast. San Francisco, Cal. L. Stone. June 27, 1876.
47. Photograph. U. S. Fish Commission.
616. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

Microgadus tomcodus, (Walb.) Gill.—TOM COD; FROST-FISH.—Newfoundland to Cape Hatteras.

14884. Cast. Wood's Holl, Mass. U. S. Fish Commission. June 11, 1873.
14885. Cast. Wood's Holl, Mass. U. S. Fish Commission. June 11, 1873.
16608. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 27, 1875.
46. Photograph. U. S. Fish Commission.
662. Color sketch. (Agassiz.) Prof. Alex. Agassiz.

Melanogrammus æglefinus, (Linn.) Gill.—HADDOCK.—Newfoundland to Cape Hatteras.

14897. Cast. Wood's Holl, Mass. U. S. Fish Commission. June 18, 1873.
14896. Cast. Portland, Me. U. S. Fish Commission. Aug. 2, 1873.
48, 49, 50. Photograph. U. S. Fish Commission.
427. Color sketch. (Richard.) U. S. Fish Commission.

Phycis chuss, (Walb.) Gill.—HAKE.—Newfoundland to Cape Hatteras.

16598. Cast. Boston, Mass. F. H. Johnson.

Phycis tenuis, (Mitch.) De Kay.—SQUIRREL HAKE.—Newfoundland to Cape Hatteras.

15729. Cast. Wood's Holl, Mass. U. S. Fish Commission. June 18, 1873.
51. Photograph. U. S. Fish Commission.

Phycis Chesteri, Goode & Bean.—LONG-FINNED HAKE.

21840. Alcoholic specimen. (Type.) Gulf of Maine. U. S. Fish Commission. Aug. 27, 1878.

Urophycis regius, (Walb.) Gill.—SPOTTED CODLING.—Cape Cod to Cape Hatteras.

788. Color sketch. (Emerton.) U. S. Fish Commission.
16845–6. Casts and alcoholic specimens. New York. Fred. Mather.

Molva vulgaris, Fleming.—LING.—Polar Seas.

16775. Cast. Coast of England. Liverpool Free Public Museum.
390. Photograph. U. S. Fish Commission.

Rhinonemus caudacuta, (Storer) Gill.—FOUR-BEARDED ROCKLING.—Nova Scotia to Cape Cod.

16356. Alcoholic specimen. Wood's Holl, Mass. V. N. Edwards.

Ciliata argentata, (Reinh.) Gill.—MACKEREL MIDGE.—Greenland to Cape Hatteras.

16179. Alcoholic specimen. Vineyard Sound, Mass. U. S. Fish Commission.

Hypsiptera argentea, Günther.

21831. Alcoholic specimen. Off Cape May, N. J. Capt. R. H. Hurlbert.

Brosmius americanus, Gill.—CUSK.—Nova Scotia to Cape Cod.

16605. Cast. Boston, Mass. Wm. Prior, jr., & Co. Sept. 25, 1875.
15886. Cast. Wood's Holl, Mass. U. S. Fish Commission. Feb. 21, 1874.
52. Photograph. U. S. Fish Commission.
429. Color sketch. (Richard.) U. S. Fish Commission.

Haloporphyrus viola, Goode & Bean.—BLUE HAKE.

21837. Alcoholic specimen. (Type.) Banquereau. Capt. Jos. W. Collins. Aug., 1878.

Lota maculosa, (Les.) Rich.—BURBOT.—Fresh waters of Northern North America.

16640. Cast. New York. E. G. Blackford.
16638. New York. E. G. Blackford.
53, 54, 55. Photographs. U. S. Fish Commission.
428. Color sketch. (Richard.) U. S. Fish Commission.
491. Color sketch. (Rötter.) Prof. Alex. Agassiz.

MERLUCIIDÆ.

Merlucius bilinearis, (Mitch.) Gill.—WHITING; SILVER HAKE.—Nova Scotia to Cape Hatteras.

15747. Cast. U. S. Fish Commission.
15931. Cast. Wood's Holl, Mass. U. S. Fish Commission. Oct. 28, 1873.
56. Photograph. U. S. Fish Commission.
562. Color sketch. Prof. Alex. Agassiz.

OPHIDIIDÆ.

Ophidium marginatum, Mitch.—Cape Cod to Cape Hatteras.

10762. Alcoholic specimen. Tompkinsville, N. Y. C. Copley.

LYCODIDÆ.

Zoarces anguillaris, (Peck) Storer.—EEL POUT.—Newfoundland to Cape Hatteras.

14888. Cast. New York market. E. G. Blackford. March, 1874.
15694. Cast. Nantucket Shoals. U. S. Fish Commission.
651. Color sketch. Prof. Alex. Agassiz.

CRYPTACANTHIDÆ.

Cryptacanthodes maculatus, Storer.—SPOTTED WRY-MOUTH.—Nova Scotia to Cape Cod.

16621. Provincetown, Mass. U. S. Fish Commission.
15889. Cast. Portland, Me. U. S. Fish Commission.
15890. Cast. Portland, Me. U. S. Fish Commission.
423. Color sketch. (Richard.) U. S. Fish Commission.
613. Color sketch. (Burkhardt.) Boston. Prof. Alex. Agassiz. Dec., 1861.

Cryptacanthodes inornatus, Gill.—GHOST-FISH.—Coast of Massachusetts.

1761. Alcoholic specimen. Maine. W. Stimpson.

AMMODYTIDÆ.

Ammodytes americanus.—SAND EEL.

382. Photograph. U. S. Fish Commission.
422. Color sketch. (Richard.) U. S. Fish Commission.

STICHÆIDÆ.

Stichæus punctatus, (Fabr.) Reinh.—North Atlantic Coast.

590. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.
21068. Alcoholic specimen. Halifax, N. S. U. S. Fish Commission. Sept. 4, 1877.

Eumesogrammus subbifurcatus, (Storer) Gill.—Nova Scotia to Cape Cod.

21067. Alcoholic specimen. Halifax, N. S. U. S. Fish Commission. Aug. 25, 1877.

XIPHIDIONTIDÆ.

Murænoides mucronatus, (Mitch.,) Gill.—ROCK EEL.—Nova Scotia to Cape Hatteras.

13847. Alcoholic specimen. Eastport, Me. U. S. Fish Commission.
488. Color sketch. Prof. Alex. Agassiz.

Murænoides ornatus, (Girard) Gill.—PACIFIC ROCK EEL.—Pacific Coast.

639. Color sketch. (Agassiz.) Ft. Roberts, Gulf of Georgia, Wash. Terr. Prof. Alex. Agassiz. July, 1859.

ANARRHICHADIDÆ.

Anarrhichas vomerinus, (Ag.) Storer.—WOLF-FISH.—Greenland to Cape Hatteras.

16439. Cast. Boston, Mass. F. H. Johnson. Sept. 8, 1875.
14900. Cast. Coxswain's Ledge, R. I. U. S. Fish Commission. July 25, 1875.
57. Photograph. U. S. Fish Commission.
770. Color sketch. (Richard.) U. S. Fish Commission.

Anarrhichas lupus, Linn.

21875. Specimen in brine. Gloucester. U. S. Fish Commission. 1878.

BATRACHIDÆ.

Batrachus tau, Linn.—TOAD-FISH; OYSTER-FISH.—Nova Scotia to Gulf of Mexico.

10743. Cast. Wood's Holl, Mass. U. S. Fish Commission.
501–2. Color sketch. (Richard.) U. S. Fish Commission.

Porichthys notatus.—Pacific Coast.

640. Color sketch. (Agassiz.) Simiahmoo, Wash. Terr. Prof. Alex. Agassiz. June, 1859.

URANOSCOPIDÆ.

Astroscopus anoplus, (Cuv. & Val.) Brevoort.—NAKED STARGAZER.—New York to Florida.

4622. Alcoholic specimen. Norfolk, Va. Prof. Theo. Gill.
571. Color sketch. (Burkhardt.) Pensacola, Fla. Prof. Alex. Agassiz; Dr. Jeffreys. April, 1854.
572. Color sketch. (Burkhardt.) Hampton Roads, Va. Prof. Alex. Agassiz; T. Leib. April, 1854.
584. Color sketch. (Burkhardt.) Jacksonville, Fla. Prof. Alex. Agassiz. 1853.
585. Color sketch. (Burkhardt.) Charleston, S. C. Prof. Alex. Agassiz. 1854.
586. Color sketch. (Burkhardt.) Coney Island, N. Y. Prof. Alex. Agassiz. April, 1854.

CYCLOPTERIDÆ.

Cyclopterus lumpus, Linn.—LUMP-FISH.—North Atlantic.

15688. Cast. New York. E. G. Blackford. May 15, 1874.
15730. Cast. New York. E. G. Blackford. April 18, 1874.
16660. Cast. Wood's Holl, Mass. U. S. Fish Commission.
58. Photograph. U. S. Fish Commission.
788. Color sketch. (Emerton.) Young specimen. Fisher's Island Sound. U. S. Fish Commission. Aug., 1874.

LIPARIDIDÆ.

Liparis lineata, (Lepechin) Kroyer.—STRIPED LIPARIS.—North Atlantic.

13960. Alcoholic. Watch Hill Reef, R. I. U. S. Fish Commission. Aug., 1874.
788. Color sketch. (Emerton.) U. S. Fish Commission.

Liparis Montagui, Don.—SEA SNAIL.—North Atlantic.

20432. Alcoholic. Wood's Holl, Mass. U. S. Fish Commission.

TRIGLIDÆ.

Dactylopterus volitans, (Linn.) Lacep.—FLYING GURNARD.—Temperate and Tropical Atlantic and Mediterranean.

15873. Cast. Wood's Holl, Mass. U. S. Fish Commission. Aug. 8, 1873.
——. Color sketch. (Richard.) U. S. Fish Commission.

Prionotus carolinus, (Linn.) Cuv. & Val.—BROAD-FINGERED SEA ROBIN.—Cape Cod to Florida.

59. Photograph. U. S. Fish Commission.
443. Color sketch. (Richard.) U. S. Fish Commission.
566. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.

Prionotus evolans, (Linn.) Gill.—STRIPED SEA ROBIN.—Cape Cod to Florida.

15735. Cast. Wood's Holl, Mass. U. S. Fish Commission.
15727. Cast. Wood's Holl, Mass. U. S. Fish Commission.
16411. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 25, 1875.
60, 61, 62. Photographs. U. S. Fish Commission.
401, 402. Color sketch. (Richard.) U. S. Fish Commission.

AGONIDÆ.

Aspidophoroides monopterygius, (Bloch.) Storer.—Polar Seas and south to Connecticut.

21700. Alcoholic. Massachusetts Bay. U. S. Fish Commission.

COTTIDÆ.

Cottus octodecimspinosus, Mitch.—SCULPIN.—Nova Scotia to Cape Hatteras.

16437. Cast. Boston, Mass. F. H. Johnson. Sept. 8, 1875.
63. Photograph. U. S. Fish Commission.
537–8. Color sketch. Prof. Alex. Agassiz.

Cottus grœnlandicus, Cuv. & Val.—GREENLAND SCULPIN.—Polar Regions to Cape Cod.

16436. Cast. Boston, Mass. F. H. Johnson.
65. Photograph. U. S. Fish Commission.
545. Color sketch. Prof. Alex. Agassiz.

Cottus Mitchilli, Cuv. & Val.—PIGMY SCULPIN.—New England Coast.

14806. Alcoholic specimens. Wood's Holl, Mass. U. S. Fish Commission.
62. Photograph. U. S. Fish Commission.
546. Color sketch. Prof. Alex. Agassiz.

Uranidea viscosa, (Hald.) De Kay.—AMERICAN MILLER'S THUMB.

609. Color sketch. (Roetter.) Plymouth, Mass. Prof. Alex. Agassiz. March, 1869.

HEMITRIPTERIDÆ.

Hemitripterus americanus, (Gmel.) Cuvier.—SEA RAVEN.—Newfoundland to New York; Seas of Japan.

15736. Cast. Wood's Holl, Mass. U. S. Fish Commission.
16414. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 2, 1875.
66, 67. Photographs. U. S. Fish Commission.
471–2. Photographs.
476. Photograph of young.

SCORPÆNIDÆ.

Sebastes marinus, (Linn.) Lütken.—NORWAY HADDOCK; HEMDURGAN; RED PERCH.—Polar Seas and south to Cape Cod.

——. Alcoholic. Eastport, Me. U. S. Fish Commission.

Sebastes viviparus, Kroyer.—ROSE-FISH.—North Atlantic.

15879. Cast. Wood's Holl, Mass. U. S. Fish Commission.
397. Photograph. U. S. Fish Commission.
789. Color sketch. Prof. Alex. Agassiz.

Sebastomus rosaceus, (Girard) Gill.—ROSY ROCK-FISH.—Coast of California.

16688. Cast. San Francisco, Cal. L. Stone.
68. Photograph. U. S. Fish Commission.

Sebastomus auriculatus, (Girard) Gill.—BLACK-EARED ROCK-FISH.—Coast of California.

612. Color sketch. (Agassiz.) San Francisco, Cal. Prof. Alex. Agassiz. Nov., 1859.

Sebastomus fasciatus, (Girard) Gill.—BANDED ROCK-FISH.—Coast of California.

483. Color sketch. (Richard.) San Francisco. Livingston Stone. U. S. Fish Commission. March, 1876.
614. Color sketch. (Agassiz.) Deep Bay, Mayne Id., W. T. Prof. Alex. Agassiz. May 20, 1859.

Sebastomus elongatus, (Girard) Gill.—Pacific Coast.

643. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

Sebastosomus melanops, (Girard) Gill.—BLACK-HEADED ROCK-FISH.—Coast of California.

653. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.
16689. Cast. San Francisco, Cal. L. Stone.
482. Color sketch. (Richard.) U. S. Fish Commission.

Sebastodes paucispinis, (Ayres) Gill.—Coast of California.

637. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

Chirus constellatus, (Girard) Gill.—"ROCK TROUT."—Coast of California.

16697. Cast. San Francisco, Cal. L. Stone.
69. Photograph. U. S. Fish Commission.
455. Photograph. U. S. Fish Commission.

Chirus pictus, Girard.—Pacific Coast.

642. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

Chirus guttatus, Girard.—Coast of California.

638. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

SCARIDÆ.

Scarus squalidus, Poey.—TAWNY PARROT-FISH.—West Indian Fauna.

973. Stuffed skin. Havana market. Prof. F. Poey.

Scarus Abildgaardii.—PARROT-FISH.—West Indian Fauna.

9738. Stuffed skin. Havana market. Prof. F. Poey.

Scarus radians, Val.—SPANISH PORGY.—West Indian Fauna.

550. Color sketch. (Burkhardt.) New Providence. Prof. Alex. Agassiz; F. S. Shaw. April, 1861.

Pseudoscarus cœruleus.—BLUE PARROT-FISH; KILMAGORE.—West Indian Fauna.

9733. Stuffed skin. Havana market. Prof. F. Poey.

LABRIDÆ.

Tautoga onitis, (Linn.) Günther.—TAUTOG; BLACK-FISH.—Bay of Fundy to South Carolina.

10598. Cast. Wood's Holl, Mass. U. S. Fish Commission.
15622. Cast. Wood's Holl, Mass. U. S. Fish Commission.
14893. Cast. Chesapeake Bay. U. S. Fish Commission. May 12.
10599. Cast. Wood's Holl, Mass. U. S. Fish Commission. May 12.
10643. Cast. Wood's Holl, Mass. U. S. Fish Commission.
15959. Cast. Wood's Holl, Mass. U. S. Fish Commission.
10599. Cast. Wood's Holl, Mass. U. S. Fish Commission.
70, 71. Photographs. U. S. Fish Commission.
450. Color sketch. (Adult.) (Richard.) U. S. Fish Commission.
451. Color sketch. (Young.) U. S. Fish Commission.
554. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.
661. Color sketch. Prof. Alex. Agassiz.

Tautogolabrus adspersus, (Walb.) Gill.—CUNNER; CHOGSET.—Newfoundland to Cape Hatteras.

14894. Cast. Wood's Holl, Mass. U. S. Fish Commission.
10746. Cast. Wood's Holl, Mass. U. S. Fish Commission.
381. Photograph. U. S. Fish Commission.
383. Photograph.
645. Color sketch. Prof. Alex. Agassiz.
431–433. Color sketch. U. S. Fish Commission.

Harpe rufus (Linn.) Gill.—SPANISH LADY-FISH.—West Indian Fauna.

597. Color sketch. (Burkhardt.) Santa Cruz. Prof. Alex. Agassiz; Dr. Jeffries.

Chœrojulis radiatus, (Linn.) Goode.—BLUE-FISH.—West Indian Fauna.

596. Color sketch. (Burkhardt.) New Providence. Prof. Alex. Agassiz; F. S. Shaw. April, 1861.

Lachnolæmus falcatus, (Linn.) Val.—West Indian Fauna.

20780. Cast. Key West, Fla. E. G. Blackford.
598. Color sketch. Prof. Alex. Agassiz.
599. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.
600. Color sketch. Prof. Alex. Agassiz.
601. Color sketch. Prof. Alex. Agassiz.

POMACENTRIDÆ.

Glyphidodon saxatilis, (Linn.) Cuv.—SERGEANT-MAJOR.—West Indian Fauna.

589. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.
591. Color sketch. (Dall.) Bermudas. Alive in Barnum's Aquarium. Prof. Alex. Agassiz. Dec., 1862.

Pomacentrus leucostictus, M. & T.—West Indian Fauna.

21703. Alcoholic. Ft. Jefferson, Fla. Thos. Moore.

Heliastes insolatus, C. & V.—West Indian Fauna.

21704. Alcoholic. Ft. Jefferson, Fla. Thos. Moore.

EMBIOTOCIDÆ.

Embiotoca Webbi, Girard.—Coast of California.

626. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

Embiotoca Jacksoni, Agassiz.—Coast of California.

625. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

Tæniotoca lateralis, (Ag.) A. Ag.—STRIPED PERCH.—Coast of California.

16691. Cast. San Francisco, Cal. L. Stone.
72. Photograph. U. S. Fish Commission.
456. Photograph. U. S. Fish Commission.
658. Color sketch. (Agassiz.) Crescent City, Cal. Prof. Alex. Agassiz. May, 1859.
659. Color sketch. (Female.) (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.
660. Color sketch. San Francisco. Prof. Alex. Agassiz. April, 1860.

Damalichthys vacca, Girard.—Coast of California.

627. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. April, 1860.

Metrogaster aggregatus, Ag.—Pacific Coast.

641. Color sketch. (Female.) (Agassiz.) San Francisco, Cal. Prof. Alex. Agassiz. Dec., 1859.

Hypsurus Caryi, Agass.—PERCH.—Pacific Coast.

606. Color sketch. San Francisco, Cal. Prof. Alex. Agassiz. April 1, 1860.

Phanerodon furcatus, Girard.—Coast of California.

636. Color sketch. (Female.) (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

Amphistichus argenteus, Ag.—Coast of California.

635. Color sketch. (Agassiz.) (Male.) San Francisco. Prof. Alex. Agassiz. April, 1860.

Amphistichus similis, Girard.—Coast of California.

634. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

Rhachochilus toxotes, Agassiz.—Coast of California.

633. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. March, 1860.

Holconotus pulchellus, A. Ag.—Coast of California.

632. Color sketch. (Male.) (Agassiz.) San Francisco. Prof. Alex. Agassiz. April, 1860.

Holconotus rhodoterus, Girard.—Coast of California.

641. Color sketch. (Female.) (Agassiz.) San Francisco. Prof. Alex. Agassiz. Dec., 1859.

Hyperprosopon argenteus, Gibbon.—Coast of California.

620. Color sketch. (Female.) (Agassiz.) San Francisco. Prof. Alex. Agassiz. March, 1860.
628. Color sketch. (Female.) (Agassiz.) San Francisco. Prof. Alex. Agassiz. April, 1860.

Abeona Trowbridgii, Girard.—Coast of California.

629. Color sketch. (Female.) (Agassiz.) California. Prof. Alex. Agassiz.

TENTHIDIDÆ.

Acanthurus chirurgus, (Bl.) Schn.—DOCTOR-FISH.—West Indian Fauna.

569. Color sketch. (Burkhardt.) Florida. Prof. Alex. Agassiz. Alive in Boston Aquarial Gardens. June, 1860.
570. Color sketch. (Burkhardt.) Florida. Prof. Alex. Agassiz. Alive in Boston Aquarial Gardens. June, 1860.

Acanthurus nigricans, (Linn.) Gill.—BLACK DOCTOR-FISH.—West Indian Fauna and occasional north.

21367. Alcoholic. Bermudas. G. Brown Goode.
21698. Dried specimen. Key West, Fla. Thomas Moore. Nov., 1878.

CHAETODONTIDÆ.

Sarothrodus capistratus, (Linn.) Poey.—COQUETTE.—West Indian Fauna.

588. Color sketch. (Burkhardt.) New Providence. Prof. Alex. Agassiz; F. S. Shaw. April, 1861.
592. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.
603. Color sketch. Prof. Alex. Agassiz.

Sarothrodus maculocinctus, Gill.

16955. Alcoholic specimens. Wood's Holl, Mass. U. S. Fish Commission. 1876.

Holacanthus tricolor, (Bl.) Lac.—BLACK ANGEL-FISH.—West Indian Fauna.

593. Color sketch. (Burkhardt.) Santa Cruz. Prof. Alex. Agassiz; Dr. Jeffries.

594. Color sketch. (Burkhardt.) Sombrero Id., W. I. Prof. Alex. Agassiz; S. R. Knox.

Holacanthus ciliaris, (Linn.) Lac.—ANGEL-FISH.—West Indian Fauna.

575. Color sketch. (Burkhardt.) Florida. Prof. Alex. Agassiz. Alive in Boston Aquarial Gardens. June, 1860.

576. Color sketch. (Burkhardt.) Florida. Prof. Alex. Agassiz. Alive in Boston Aquarial Gardens. June, 1860.

577. Color sketch. (Burkhardt.) Florida. Prof. Alex. Agassiz. Alive in Boston Aquarial Gardens. June, 1860.

21876. Alcoholic. Bermudas. G. Brown Goode.

583. Color sketch. (Burkhardt.) Bermudas. Prof. Alex. Agassiz. Alive in Barnum's Aquarium. 1862.

Pomacanthus arcuatus, (Linn.) Cuv.—PALOMETTA.—West Indian Fauna.

602. Color sketch. (Burkhardt.) Florida. Prof. Alex. Agassiz. Alive in Boston Aquarial Garden. June, 1860.

XIPHIIDÆ.

Xiphias gladius, SWORD-FISH.—Atlantic and Mediterranean.

16126. Cast in *papier-maché*. Off Noman's Land, Mass. U. S. Fish Commission. Aug., 1875.

21699. Sword 1⅛ inches long. Taken from nostril of *Lamna cornubica*. Gloucester, Mass. U. S. Fish Commission. Sept. 26, 1878.

Tetrapturus albidus, Poey.—SPIKE-FISH.—Cape Cod to West Indies.

15834. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 23, 1873.

73. Photograph. U. S. Fish Commission.

411. Water-color sketch. U. S. Fish Commission.

Histiophorus americanus, Cuv. & Val.—SAIL-FISH.—Atlantic Coast of America.

16634. Cast. Wood's Holl, Mass. U. S. Fish Commission. Aug., 1872.

74. Photograph. U. S. Fish Commission.

TRICHIURIDÆ.

Trichiurus lepturus, Linn.—HAIR-TAIL; SCABBARD-FISH.—Temperate and Tropical Atlantic.

14874. Cast. Wood's Holl, Mass. U. S. Fish Commission.

559. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.

SCOMBRIDÆ.

Scomber scombrus, Linn.—MACKEREL.—Northern Atlantic.

16443. Cast. New York market. E. G. Blackford. Sept. 10, 1875.
10604. Cast. (Male.) Washington market. S. F. Baird.
10650. Cast. Wood's Holl, Mass. U. S. Fish Commission.
10650. Cast. Wood's Holl, Mass. U. S. Fish Commission.
76, 77, 78, 393, 395. Photographs. U. S. Fish Commission.
755–6–7. Color sketches. U. S. Fish Commission.
654. Color sketch. Prof. Alex. Agassiz.

Sarda pelamys, (Linn.) Cuv.—BONITO.—Atlantic and Mediterranean.

16325. Cast. Wood's Holl, Mass. U. S. Fish Commission.
15748. Cast. New York market. E. G. Blackford.
79, 80, 81. Photographs. U. S. Fish Commission.
467–8. Color sketches. (Richard.) Wood's Holl. U. S. Fish Commission. 1875.
558. Color sketch. New York. Prof. Alex. Agassiz. Oct. 20, 1847.

Orcynus secundi-dorsalis, (Storer) Gill.—TUNNY; HORSE-MACKEREL.—Newfoundland to Florida.

16509. Cast. New York market. E. G. Blackford.
82, 83, 84. Photographs. U. S. Fish Commission.
436, 37, 96, 513. Color sketches. (Richard.) U. S. Fish Commission.

Orcynus alliteratus, (Raf.) Gill.—LITTLE TUNNY; ALBICORE.—Pelagic.

15710. Cast. Noank, Conn. U. S. Fish Commission.
15683. Cast. Noank, Conn. U. S. Fish Commission.
85. Photograph. U. S. Fish Commission.
497. Color sketch. (Richard.) U. S. Fish Commission.

Orcynus pelamys, (Linn.) Poey.—OCEANIC BONITO.—Temperate and Tropical Seas.

21852. Alcoholic. Chilmark, Mass. U. S. Fish Commission.
21562–3. Casts. Wood's Holl, Mass. U. S. Fish Commission.
21566. Alcoholic. New York market. E. G. Blackford.

Orcynus alalonga, (Gmelin) Risso.—LONG-FINNED BONITO.—Atlantic, Mediterranean.

21844. Alcoholic. Banquereau. Capt. Wm. Thompson.

Orcynus argenti-vittatus, (C. & V.) Goode & Bean?—Atlantic.

21702. Skins. Banquereau. Capt. Wm. Thompson.

Cybium maculatum, (Mitch.) Cuv.—SPANISH MACKEREL.—Atlantic shores of Tropical and Temperate America.

15367. Cast. Norfolk, Va. U. S. Fish Commission.
16407. Cast. Wood's Holl, Mass. U. S. Fish Commission.
15750. Cast. New York. E. G. Blackford.
86. Photographs. U. S. Fish Commission.
514. Color sketch. (Richard.) U. S. Fish Commission.
663. Color sketch. Prof. Alex. Agassiz.

Cybium regale, (Bl.) Cuv.—SPOTTED CERO.—West Indian Fauna and north to Cape Cod.

16322. Cast. Key West, Fla. E. G. Blackford.
87, 88, 89. Photographs. U. S. Fish Commission.
405–515. Color sketch. (Richard.) U. S. Fish Commission.
21612. Stuffed. Cuba. Prof. Felipe Poey.

Cybium caballa, Cuv. & Val.—CERO.—Atlantic Shores of Tropical and Temperate America.

16478. Cast. New York market. E. G. Blackford. Sept. 14, 1875.
90, 91, 92, 93, 94, and 95. Photographs. U. S. Fish Commission.
405–486–7. Color-sketch. (Richard.) U. S. Fish Commission.
21611. Stuffed. Cuba. Prof. Felipe Poey.

CARANGIDÆ.

Vomer setipinnis, (Mitch.) Ayres.—SILVER-FISH.—Maine to Florida. West Indian Fauna.

16915. Cast. Wood's Holl, Mass. V. N. Edwards. Sept. 7, 1873.
16315. Cast. New York. E. G. Blackford.

Argyreiosus vomer, Lac.—SILVER-FISH.—Cape Cod to Florida, and West Indian Fauna.

16475. Cast. New York. E. G. Blackford.
15905. Cast. Wood's Holl, Mass. V. N. Edwards.
96. Photograph. U. S. Fish Commission.
440, 495. Color sketches. (Richard.) U. S. Fish Commission.

Paratractus pisquetus, (Cuv. & Val.) Gill.—YELLOW CREVALLÉ.—Cape Cod to Florida.

16471. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 14, 1875.
15843. Cast. Wood's Holl, Mass. U. S. Fish Commission.
15888. Cast. Wood's Holl, Mass. U. S. Fish Commission.
15887. Cast. Wood's Holl, Mass. U. S. Fish Commission.
98, 99, 100. Photographs. U. S. Fish Commission.
778–9. Color sketches. (Richard.) U. S. Fish Commission.

Trachurops crumenophthalmus, (Bloch.) Gill.—BIG-EYED SCAD; GOGGLE-EYE.—Pelagic.

16481. Alcoholic. New York market. E. G. Blackford.
97. Photograph. U. S. Fish Commission.

Decapterus punctatus, (Mitch.) Gill.—ROUND ROBIN.—West Indian Fauna and north to Massachusetts.

18951. Alcoholic. Wood's Holl, Mass. U. S. Fish Commission.
21365. Alcoholic. Bermudas. G. Brown Goode.

Decapterus macarellus, (C. & V.) Gill.—MACKEREL SCAD.—West Indian Fauna and north to Massachusetts.

16239. Alcoholic specimen. Wood's Holl, Mass. U. S. Fish Commission.
21630. Alcoholic. Newport, R. I. Samuel Powel.

Caranx hippos, (Linn.) Gill.—HORSE CREVALLÉ.—Atlantic Coasts of Temperate and Tropical America, East Indian and Australian Seas.

14859. Cast. Florida. E. G. Blackford.
101. Photograph. U. S. Fish Commission.
21654. Alcoholic. Newport, R. I. Samuel Powel.

Caranx chrysos, (Mitch.) Gill.—YELLOW MACKEREL.—West Indian Fauna and north to Cape Cod.

15708. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 15, 1873.
15746. Cast. Wood's Holl, Mass. U. S. Fish Commission. Oct. 8, 1873.
15696. Cast. Wood's Holl, Mass. U. S. Fish Commission.
102, 103. Photographs. U. S. Fish Commission.

Blepharichthys crinitus, (Akerly) Gill.—THREAD-FISH.—West Indian Fauna and north to Cape Cod.

16520. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 18, 1875.
105–105. Photographs. U. S. Fish Commission.
475. Color sketch. (Richard.) U. S. Fish Commission.

Zonichthys fasciatus, (Bloch.) Sw.—BERMUDA BONITO; MEDREGAL.—Cuba, South Carolina, Bermuda.

15828. Cast. New York. E. G. Blackford.
494. Color sketch. U. S. Fish Commission.

Trachynotus carolinus, (Linn.) Gill.—POMPANO.—Atlantic Coasts of America south of Cape Cod.

15904. Cast. Norfolk, Va. U. S. Fish Commission. June 20, 1873.
15809. Cast. New York market. E. G. Blackford. October 12, 1875.
106, 107. Photographs. U. S. Fish Commission.
473–4. Color sketches. (Richard.) U. S. Fish Commission.

Trachynotus ovatus, (Linn.) Gthr.—SHORT POMPANO.—Pelagic.

16707. New York. E. G. Blackford.
400. Color sketch. (Young.) (Richard.) Vineyard Haven, Mass. U. S. Fish Commission.
547. Color sketch. (Richard.) U. S. Fish Commission.

Halatractus zonatus, (Mitch.) Gill.—BANDED RUDDER-FISH.—Cape Cod to Florida.

16472. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 14, 1875.
16532. Cast. Wood's Holl, Mass. U. S. Fish Commission.
108–9. Photographs. U. S. Fish Commission.
477. Color sketch. U. S. Fish Commission.
478. Color sketch. U. S. Fish Commission.
479. Color sketch. U. S. Fish Commission.

Seriola Lalandii, C. & V.?—AMBER-FISH.—Atlantic Ocean; Japan.

16709. Cast. Florida. E. G. Blackford.
110. Photograph. U. S. Fish Commission.

Oligoplites occidentalis, (Linn.) Gill.—LEATHER JACKET.—West Indies; occasional on coast.

16354. Cast. New York market. E. G. Blackford. Aug. 13, 1875.
111. Photograph. U. S. Fish Commission.
429. Color sketch. (Richard.) U. S. Fish Commission.

CORYPHÆNIDÆ.

Coryphæna Sueuri, Cuv. & Val.—DOLPHIN.—Pelagic; occasional on coast.

16441. Cast. New York market. E. G. Blackford.
——. Color sketch. (Richard.) U. S. Fish Commission.
16420. Cast. New York. E. G. Blackford.
16482. Cast. New York. E. G. Blackford.

Coryphæna punctulata, (Cuv. & Val.) Gthr.—SMALL-SPOTTED DOLPHIN.—Pelagic; occasional on coast.

16406. Cast. Noank, Conn. J. H. Latham. Aug. 25, 1875.
112, 113, and 114. Photographs. U. S. Fish Commission.

STROMATEIDÆ.

Palinurichthys perciformis, (Mitch.) Gill.—BLACK RUDDER-FISH.—Newfoundland to Cape Hatteras.

16616. Cast. Martha's Vineyard. U. S. Fish Commission. Sept. 25, 1875.
15935. Cast. Wood's Holl, Mass. U. S. Fish Commission.
544. Color sketch. (Richard.) U. S. Fish Commission.

Poronotus triacanthus, (Peck.) Gill.—HARVEST-FISH; BUTTER-FISH.—Maine to Cape Hatteras.

16591. Cast. Wood's Holl, Mass. U. S. Fish Commission.
115. Photograph. U. S. Fish Commission.
359–60–61. Color sketches. (Richard.) U. S. Fish Commission.
516–17. Color sketches.

Peprilus Gardenii, (Bl., Schn.) Gill.—SHORT HARVEST-FISH.—West Indian Fauna and north to New York.

16819. Cast. Chesapeake Bay. Sibley.
15234. New York market. John Sutherland.

LATILIDÆ.

Caulolatilus microps, Goode & Bean.—Gulf of Mexico.

20971. Alcoholic. Pensacola, Fla. Silas Stearns.

BERYCIDÆ.

Holocentrum sogo, Bloch.—SQUIRREL.—West Indian Fauna, accidental on coast; found at Newport, R. I.

578. Color sketch. (Burkhardt.) Bermudas. Prof. Alex. Agassiz. Alive in Barnum's Aquarium. Dec., 1862.
595. Color sketch. (Burkhardt.) New Providence. Prof. Alex. Agassiz; F S. Shaw. April, 1861.
21232. Alcoholic. Bermudas. J. M. Jones.

SCIAENIDÆ.

Cynoscion regalis, (Bl.) Gill.—SQUETEAGUE; WEAK-FISH.—Cape Ann to Florida.

16216. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 27, 1875.
12216. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 27, 1875.
116, 117, 118, 119. Photographs. U. S. Fish Commission.
469–70. Color sketches. (Richard.) U. S. Fish Commission.

Cynoscion carolinensis, (Cuv. & Val.) Gill.—SPOTTED SQUETEAGUE.—Gulf of Mexico and Southern Atlantic States.

15928. Cast.
15929. Cast.
120, 121, 122. Photographs. U. S. Fish Commission.
790. Color sketch. (Richard.) U. S. Fish Commission.

Cynoscion nothus, Holbrook.—SILVER SQUETEAGUE.—Southern Coast.

21480. Alcoholic. Pensacola, Fla. Silas Stearns.

Pogonias chromis, Lacep.—DRUM.—Cape Cod to Florida; Gulf of Mexico.

15699. Cast. Wood's Holl, Mass. U. S. Fish Commission.
15686. Cast. Fisher's Island Sound. Charles Potter. July 10, 1874.
123, 124, 125. Photographs. U. S. Fish Commission.
791. Color sketch. (Richard.) U. S. Fish Commission.
21282. Alcoholic. St. John's River, Fla. G. Brown Goode.

Haploidonotus grunniens, Raf.—FRESH-WATER DRUM.—Great Lakes and Mississippi Valley.

15701. Cast. Sandusky, Ohio. J. W. Milner. 1873.
126-127. Photographs. U. S. Fish Commission.

Liostomus obliquus, (Mitch.) De Kay.—SPOT.—Cape Cod to Florida.

15816. Cast. Norfolk, Va. U. S. Fish Commission.
15817. Cast. June 10, 1873.
141. Photograph. U. S. Fish Commission.
567. Color sketch. New York. Prof. Alex. Agassiz. Oct. 26, 1847.

Liostomus xanthurus, Lacep.—YELLOW-TAILED SPOT.—Southern Atlantic States.

142. Photograph. U. S. Fish Commission.

Bairdiella punctata, (Linn.) Gill.—SILVER-FISH; YELLOW TAIL.—Cape Cod to Florida.

143. Photograph. U. S. Fish Commission.
19060. Alcoholic. St. John's River, Florida. G. Brown Goode.

Sciaenops ocellatus, (Linn.) Gill.—RED BASS; SPOTTED BASS.—Cape Cod to Florida; Gulf of Mexico.

15463. Cast. Washington market. J. W. Milner.
15739. Cast. New York. E. G. Blackford.
128, 129, 130. Photographs. U. S. Fish Commission.
——. Oil painting. (J. H. Richard.)

Menticirrus alburnus, (Linn.) Gill.—SOUTHERN KING-FISH.—Cape Hatteras to Florida.

137. Photograph. U. S. Fish Commission.
19081. Alcoholic. St. John's River, Fla. G. Brown Goode.

Menticirrus nebulosus, (Mitch.) Gill.—KING-FISH.—Cape Cod to Florida.

16219. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 27, 1875.
15579. Cast. New York market. E. G. Blackford. October 14, 1875.
15579. Cast. New York market. E. G. Blackford. October 14, 1875,
131, 132, 133, 134, 135, and 136. Photographs. U. S. Fish Commission.
508-9-10-11-12. Color sketches. (Richard.) U. S. Fish Commission.

Micropogon undulatus, (Linn.) Cuv. & Val.—CROAKER.—Atlantic Coasts of America south of Cape Cod.

15845. Cast. Norfolk, Va. U. S. Fish Commission. June 19, 1873.
15810. Cast. Norfolk, Va. U. S. Fish Commission. July 18, 1873.
138, 139, 140. Photographs. U. S. Fish Commission.
19056. Alcoholic. St. John's River, Fla. G. Brown Goode.

GERRIDÆ.

Eucinostomus argenteus, B. & G.—Cape Cod and southward.

16960. Alcoholic. Wood's Holl, Mass. U. S. Fish Commission.

Eucinostomus Lefroyi, Goode.—BERMUDA SHAD.—West Indian Fauna.

21358. Alcoholic. Bermudas. G. Brown Goode.

PIMELEPTERIDÆ.

Pimelepterus Boscii, Lacep.—BREAM.—West Indian Fauna and north to Cape Cod.

20844. Alcoholic. Newport, R. I. S. Powell.
20635. Alcoholic. Wood's Holl, Mass. U. S. Fish Commission.
21368. Alcoholic. Bermudas. G. Brown Goode.

SPARIDÆ.

Lagodon rhomboides, (Linn.) Holbrook.—SAILOR'S CHOICE.—West Indian Fauna and north to Cape Cod.

21280. Alcoholic. St. John's River, Fla. G. Brown Goode.

Archosargus probatocephalus, (Walb.) Gill.—SHEEPSHEAD.—Cape Cod to Florida; Gulf of Mexico.

10685. Cast. Washington market. J. W. Milner.
15825. Cast. New York market. E. G. Blackford. October 20, 1875.
15826. Cast. New York market. E. G. Blackford. October 14, 1875.
14880. Cast. Norfolk, Va. U. S. Fish Commission. July 11, 1872.
15818. Cast. New York. E. G. Blackford.
144, 145. Photographs. U. S. Fish Commission.
548. Color sketch. (Richard.) U. S. Fish Commission.

Stenotomus argyrops, (Linn.) Gill.—SCUPPAUG; SCUP; PORGY.—Cape Ann to Florida.

16035. Cast. Buzzard's Bay. U. S. Fish Commission. July 10, 1875.
10668. Cast. Wood's Holl, Mass. V. N. Edwards.
16209. Cast.
10601. Cast. Wood's Holl, Mass. V. N. Edwards.
146–47. Photographs. U. S. Fish Commission.
439. Color sketch. (Young.) (Richard.) U. S. Fish Commission.

Sargus Holbrookii, Bean.—CHARLESTON BREAM.—Carolinas.

20979. Cast. Charleston, S. C. G. Brown Goode.

Sparus aculeatus, (Cuv. & Val.) Gill.?—BASTARD SNAPPER.—Southern Coast.

20981. Cast. Charleston, S. C. G. Brown Goode.

PRISTIPOMATIDÆ.

Hæmylum arcuatum, Cuv. & Val.—BLUE-CHECKED RED-MOUTH.—South Atlantic Coast of United States.

14907. Cast. Florida. E. G. Blackford.

Hæmylum formosum, (Linn.) Cuv.—SQUIRREL RED-MOUTH.—South Atlantic Coast of United States.

15846. Cast. Florida. E. G. Blackford.

Hæmylum, sp.—South Atlantic Coast of United States.

15840. Cast. Florida. E. G. Blackford.

Hæmylum chrysopterum, (Linn.) Cuv.?—YELLOW-FINNED GRUNT.—South Atlantic Coast of United States.

15918. Cast. Florida. E. G. Blackford.

Hæmylum elegans, Cuv. & Val.—BLUE-STRIPED RED-MOUTH.—South Atlantic Coast of United States.

15815. Cast. Florida. E. G. Blackford.
573. Color sketch. (Dall.) Florida. Prof. Alex. Agassiz. Alive in Boston Aquarial Garden. June, 1860.
574. Color sketch. (Burkhardt.) Bermudas. Prof. Alex. Agassiz. Alive in Barnum's Aquarium. Nov. 1862.

Hæmylum arara, Poey?—ARARA RED-MOUTH.—West Indian Fauna.

552. Water-color sketch. (Burkhardt.) Florida. Prof. Alex. Agassiz. Alive in Boston Aquarial Garden. June, 1860.

Orthopristis fulvomaculatus, (Mitch.) Gill.—SPECKLED GRUNT.—South Atlantic Coast of United States.

15812. Cast. Norfolk, Va. U. S. Fish Commission.
15814. Cast. Norfolk, Va. U. S. Fish Commission.
15908. Cast.

Anisotremus virginicus, (Linn.) Gill.—South Atlantic Coast of United States.

15903. Cast. Florida. E. G. Blackford. April 16, 1874.
148. Photograph. U. S. Fish Commission.
551. Color sketch. (Burkhardt.) New Providence. Prof. Alex. Agassiz; F. S. Shaw. April, 1861.

Lutjanus Blackfordii, Goode & Bean.—RED SNAPPER.—West Indian Fauna and north to Savannah Bank.

15700. Cast. New York market. E. G. Blackford. May 7, 1874.
12515. Cast. Washington market. J. W. Milner.
149. Photograph. U. S. Fish Commission.

Lutjanus, sp.—SNAPPER.—West Indian Fauna and Southern Atlantic States.

15917. Cast. Florida. E. G. Blackford.

Lutjanus, sp.—South Atlantic Coast of United States.

16641. Cast. Key West, Fla. E. G. Blackford.

Lutjanus caxis, (Bl., Schn.) Gill.—GRAY SNAPPER.—West Indian Fauna and Southern Atlantic States.

18101. Alcoholic. Bermudas. G. Brown Goode.

Lutjanus Stearnsii, Goode & Bean.—GULF SNAPPER.—Gulf of Mexico.

21330. Cast. Pensacola, Fla. Silas Stearns.

Rhomboplites, aurorubeus, (Cuv. & Val.) Gill.—MANGROVE SNAPPER.—West Indian Fauna.

21224. Alcoholic. Charleston, S. C. C. C. Leslie.
21338. Alcoholic. Pensacola, Fla. Silas Stearns.

Ocyurus chrysurus, (Bl.) Gill.—GOLDEN TAIL.—West Indian Fauna.

14905. Cast. New York market. Florida. E. G. Blackford. April 16, 1874.
150. Photograph. U. S. Fish Commission.
555. Color sketch. (Burkhardt.) New Providence. Prof. Alex. Agassiz; F. S. Shaw. April, 1861.

CENTRARCHIDÆ.

Eupomotis aureus, (Walb.) Gill & Jordan.—SUN-FISH.—Fresh waters of Eastern North America.

14941. Cast. Washington market. G. Brown Goode. February, 1875.
151, 152. Photograph. U. S. Fish Commission.
505. Color sketch. (Richard.) U. S. Fish Commission.

Lepiopomus pallidus, (Mitch.) Gill & Jordan.—BLUE-NOSE BREAM.—Great Lakes and Southeastern United States.

18368. Alcoholic. St. John's River, Fla. G. Brown Goode.

Pomoxys nigromaculatus, (Les.) Girard.—GRASS BASS.—Great Lakes, Mississippi Valley, and Southern Atlantic States.

10382. Cast. Norfolk, Va. Dr. H. C. Yarrow.
153, 154. Photograph. U. S. Fish Commission.

Ambloplites rupestris, (Raf.) Gill.—ROCK BASS.—Great Lakes and Mississippi Valley.

15958. Cast. U. S. Fish Commission.
151. Photograph. U. S. Fish Commission.

Micropterus pallidus, (Raf.) Gill & Jordan.—LARGE-MOUTH BLACK BASS.—Great Lakes, Mississippi River and tributaries; Southern States; introduced northward.

10380. Cast. Norfolk, Va. Dr. H. C. Yarrow.
10668. Cast. Norfolk, Va. U. S. Fish Commission. Nov. 5, 1873.
10381. Cast. Norfolk, Va. Dr. H. C. Yarrow.
15880. Cast. Carrollton, Ky. J. W. Milner.
10380. Cast. Norfolk, Va. Dr. H. C. Yarrow.
155, 156. Photographs. U. S. Fish Commission.

Micropterus salmoides, (Lac.) Gill.—SMALL-MOUTHED BLACK BASS.—Great Lakes and Mississippi Valley; introduced eastward.

15297. Cast. Potomac River. Maj. Hobbs.

PERCIDÆ.

Perca fluviatilis, L.—YELLOW PERCH.—Fresh waters of Eastern United States and Western Europe.

14976. Cast. Washington market. G. Brown Goode. Feb. 27, 1875.
167, 168, 169. Photographs. U. S. Fish Commission.
792. Color sketch. (Richard.) U. S. Fish Commission.

Stizostedium vitreum, (Mitch.) Jordan & Copeland, (Val.) Cope.—YELLOW PIKE-PERCH.—Fresh waters of Central United States.

15658. Cast. New York market. E. G. Blackford.
14862. Cast. Sandusky, Ohio. J. W. Milner. Oct., 1873.
611. Color sketch. (Roetter.) Sackett's Harbor, N. Y. Prof. Alex. Agassiz. Nov., 1868.
15658. Cast. New York market. E. G. Blackford. Nov. 5, 1875.
170, 171, 172, 173, 174. Photographs. U. S. Fish Commission.
793. Color sketch. (Richard.) U. S. Fish Commission.

Stizostedium canadense, (Smith) Jordan.—CANADA PIKE-PERCH.—St. Lawrence River to the Upper Missouri.

178. Photograph. U. S. Fish Commission.
15752. Cast. Ohio River. J. W. Milner.
15837. Cast.
175, 176, 177. Photographs. U. S. Fish Commission.

SERRANIDÆ.

Epinephelus morio, (Cuv.) Gill.—RED-BELLIED SNAPPER.—West Indian Fauna and Southern Atlantic States.

12516. Cast. Washington market. J. W. Milner.
165. Photograph. U. S. Fish Commission.

Epinephelus, sp.—SNAPPER.—West Indian Fauna and Southern Atlantic States.

14923. Cast. Florida. E. G. Blackford.

Epinephelus Drummond-Hayi, Goode & Bean.—STAR SNAPPER; HIND; JOHN PAW.—West Indian Fauna.

16795. Cast. South Florida. E. G. Blackford.
21255. Alcoholic. Pensacola, Fla. Silas Stearns.
——. Color sketch. Bermuda. Col. H. Drummond-Hay.

Epinephelus nigritus, Holbrook.—BLACK GROUPER.—Coast of Florida.

21239. Cast. Pensacola, Fla. Silas Stearns.

Epinephelus striatus, (Bloch.) Gill.—HAMLET; GROUPER.—West Indian Fauna.

18088. Alcoholic. Bermudas. G. Brown Goode.
582. Color sketch. (Burkhardt.) Bermudas. Prof. Alex. Agassiz. Alive in Barnum's Aquarium. Nov., 1862.

Epinephelus guttatus, (Gmel.) Goode.—BERMUDA HIND.—West Indian Fauna.

18118. Alcoholic. Bermudas. G. Brown Goode.
587. Color sketch. (Burkhardt.) Bermudas. Prof. Alex. Agassiz. Alive in Barnum's Aquarium. Nov., 1862.

Trisotropis undulosus, (Cuv.) Gill.?—ROCK GROUPER.—Cape Hatteras to Florida; West Indian Fauna.

15462. Cast. New York market. E. G. Blackford. June 14, 1875.
15881. Cast. New York market. E. G. Blackford. June 14, 1875.
794. Color sketch. (Richard.) U. S. Fish Commission.

Promicrops guasa, (Poey) Gill.—JEW-FISH; GUASA.—West Indian Fauna.

15305. Cast. Key West. E. G. Blackford.
444. Color sketch. (Richard.) U. S. Fish Commission.

Centropristis atrarius, (Linn.) Barn.—SEA BASS.—Cape Cod to Florida.

10642. Cast. Wood's Holl, Mass. U. S. Fish Commission.
10597. Cast. Wood's Holl, Mass. U. S. Fish Commission. May 12, 1874.
15684. Cast. (Male.) Noank, Conn. U. S. Fish Commission. August, 1874.
15685. Cast. Wood's Holl, Mass. U. S. Fish Commission. September 2, 1875.
10667. Cast. (Female.) Wood's Holl, Mass. U. S. Fish Commission.
15963. Cast. Hog-fish Rocks, Va. U. S. Fish Commission. July 5, 1873.
157, 158, 159, 160, 161, 162, 163, 164, 181. Photographs. U. S. Fish Commission.
463–4 and 5. Color sketches. (Richard.) U. S. Fish Commission.

Diplectrum fasciculare, (Cuv. & Val.) Holb.—SQUIRREL.—Cape Hatteras to Florida; West Indian Fauna.

15844. Cast. New York. E. G. Blackford.
166. Photograph. U. S. Fish Commission.

LABRACIDÆ.

Roccus lineatus, (Schn.) Gill.—STRIPED BASS; ROCK-FISH.—St. Lawrence to Florida.

10664. Cast. (Female.) Potomac River. Dr. H. C. Yarrow.
15737. Cast. Wood's Holl, Mass. U. S. Fish Commission. May 27, 1873.
15725. Cast. Washington market. G. Brown Goode.
15706. Cast. New York. E. G. Blackford. Nov. 28, 1874.
185–186, 187. Photographs. U. S. Fish Commission.
782–3. Color sketch. (Richard.) U. S. Fish Commission.

Roccus chrysops, (Raf.) Gill.—WHITE BASS.—Great Lakes and Mississippi Valley.

15807. Cast. New York market. E. G. Blackford. Oct. 7, 1875.
188. Photographs. U. S. Fish Commission.
503. Color sketch. (Richard.) U. S. Fish Commission.

Morone americana, (Gmel.) Gill.—WHITE PERCH.—Nova Scotia to Florida.

10748. Cast. Wood's Holl, Mass. U. S. Fish Commission.
10729. Cast. (Female.) Wood's Holl, Mass. U. S. Fish Commission.
10730. Cast. Wood's Holl, Mass. U. S. Fish Commission.
16618. Cast. Wood's Holl, Mass. U. S. Fish Commission.
179, 180, 181, 182, 183, 184. Photographs. U. S. Fish Commission.
766. Color sketch. (Richard.) U. S. Fish Commission.

EPHIPPHIDÆ.

Parephippus quadratus, (Gun.) Gill.—MOON-FISH.—Cape Cod to Florida; West Indian Fauna.

14886. Cast. Norfolk, Va. U. S. Fish Commission. July, 1873.
14887. Cast. Norfolk, Va. U. S. Fish Commission. July, 1873.
15820. Cast. Norfolk, Va. U. S. Fish Commission.
196, 197. Photographs. U. S. Fish Commission.

LOBOTIDÆ.

Lobotes surinamensis, Cuv.—TRIPLE-TAIL FLASHER.—Cape Cod to Florida; West and East Indies.

15702. Cast. Wood's Holl, Mass. U. S. Fish Commission. August 28, 1873.
16202. Cast. New York market. E. G. Blackford. July 20, 1875.
201, 202. Photographs. U. S. Fish Commission.

POMATOMIDÆ.

Pomatomus saltatrix, (Linn.) Gill.—BLUE-FISH.—Pelagic.

15871. Cast. Wood's Holl, Mass. V. N. Edwards. June 11, 1873.
13166. Cast. Norfolk, Va. G. Brown Goode.
15753. Cast.
189, 190, 191, 192, 193, 194, 195, 386. Photographs. U. S. Fish Commission.
528–2–30. Color sketches. (Richard.) U. S. Fish Commission.

ELACATIDÆ.

Elacate canadus, (Linn.) Gill.—COBIA; CRAB-EATER.—Cape Cod to West Indies.

16250. Cast. New York market. E. G. Blackford. July 30, 1875.
14922. Cast. Point Lookout, Va. J. H. Skidmore. July 9, 1874.
198, 199, 200. Photographs. U. S. Fish Commission.

PRIACANTHIDÆ.

Pseudopriacanthus altus, (Gill) Bleeker.—SHORT BIG-EYE.—Cape Cod to Cape Hatteras.

203. Photograph. U. S. Fish Commission.
441. Color sketch. (Richard.) U. S. Fish Commission.
15583. Alcoholic. Wood's Holl, Mass. U. S. Fish Commission. Sept., 1875.
16954. Alcoholic. Wood's Holl, Mass. U. S. Fish Commission. 1876.

ECHENEIDIDÆ.

Leptecheneis naucrateoides, (Zuiew.) Gill.—REMORA; SUCKER-FISH.—Coast generally.

16071. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 10, 1875.
16617. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 18, 1875.
16344. Cast. Wood's Holl, Mass. U. S. Fish Commission. Aug. 10, 1875.
206, 207, 208. Photographs. U. S. Fish Commission.
541–2–3. Color sketch. (Richard.) U. S. Fish Commission.

Remoropsis brachyptera, (Lowe) Gill.—SWORD-FISH SUCKER.—Parasite of the Sword-fish (*Xiphias gladius*).

21693. Alcoholic. Sable I'd Bank. Capt. G. A. Johnson.

Rhombochirus osteochir, (Cuv.) Gill.—SPEAR-FISH SUCKER.—Parasites of the Bill-fish (*Tetrapturus albidus*).

15842. Cast. Wood's Holl, Mass. U. S. Fish Commission.
209, 210, 211. Photographs. U. S. Fish Commission.
764–5. Color sketches. (Richard.) U. S. Fish Commission.

SPHYRÆNIDÆ.

Sphyræna borealis, De Kay.—NORTHERN BARRACUDA.—Cape Cod to Florida.

14978. Cast. Florida. E. G. Blackford.
204, 205. Photographs. U. S. Fish Commission.
407. Color sketch. (Richard.) U. S. Fish Commission. Probably identical with *Sphyræna spet* (Hauy) Goode, the common species of the Mediterranean.

Sphyræna picuda.—SOUTHERN BARRACUDA.—West Indian Fauna, &c.

21886. Alcoholic. Bermudas. G. Brown Goode.

PERCESOCES.

MUGILIDÆ.

Mugil lineatus, Mitch.—STRIPED MULLET.—Cape Cod to Florida; Gulf of Mexico.

15723. Cast.
212, 213, 214, 215, 216. Photographs. U. S. Fish Commission.
421. Color sketch. (Richard.) U. S. Fish Commission.

Mugil albula, Linn.—WHITE MULLET.—Cape Cod to Florida (probably young of the preceding species).

420. Color sketch. (Richard.) U. S. Fish Commission.
21302. Alcoholic. Florida. G. Brown Goode.

ATHERINIDÆ.

Chirostoma notatum, (Mitch.) Gill.—SILVER-SIDES; FRIAR.—Maine to Florida.

14930. Cast.
16612. Cast.
16620. Cast. Wood's Holl, Mass. U. S. Fish Commission.
380, 382. Photographs. U. S. Fish Commission.
518. Color sketch. (Richard.) U. S. Fish Commission.

Chirostoma californiensis, (Girard) Gill.—"SMELT."—Coast of California.

506. Color sketch. (Richard.) U. S. Fish Commission.
16693. Alcoholic. San Francisco. Livingston Stone.
16693. Cast. San Francisco. U. S. Fish Commission.

HEMIBRANCHII.

GASTEROSTEIDÆ.

Pygosteus occidentalis, (Cuv. & Val.) Brevoort.—TEN-SPINED STICKLE-BACK.—Newfoundland to Cape Hatteras.

384. Photograph. U. S. Fish Commission.
644. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.

Gasterosteus noveboracensis, Cuv. & Val.—NEW YORK STICKLE-BACK.—New Brunswick to Cape Hatteras.

644. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.

Apeltes quadracus, (Mitch.) Brev.—FOUR-SPINED STICKLE-BACK.—New Brunswick to Florida.

384. Photograph. U. S. Fish Commission.
644. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.
Many other species of Gasterosteus are included in the series, which were not of sufficient importance to be enumerated.

AULOSTOMIDÆ.

Aulostoma maculatum, Val.—TRUMPET-FISH.—West Indian Fauna.

568. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.

FISTULARIIDÆ.

Fistularia serrata, Cuv.—TOBACCO-PIPE-FISH.—Cape Cod to Florida; West Indian Fauna.

16957. Alcoholic. Wood's Holl, Mass. U. S. Fish Commission. 1876.

SYNENTOGNATHI.

BELONIDÆ.

Belone longirostris, (Mitch.) Gill.—SILVER GAR-FISH.—Cape Cod to Florida.

16555. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 21, 1875.
16423. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 6, 1875.
217. Photograph. U. S. Fish Commission.
563. Color sketch. Prof. Alex. Agassiz.
540. Color sketch. (Richard.) U. S. Fish Commission.

Belone latimanus, Poey.—SILVER GAR-FISH.—Cape Cod to Florida.

16121. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 15, 1875.
795. Color sketch. (Richard.) U. S. Fish Commission.
218. Photograph. U. S. Fish Commission.

Belone hians, Cuv. & Val.—BOW-MOUTHED GAR-FISH.—West Indian Fauna.

21810. Alcoholic. New York market. G. Brown Goode.

Belone Jonesii, Goode.—HOUND-FISH.—West Indian Fauna.

21392. Alcoholic. Bermudas. G. Brown Goode.

SCOMBERESOCIDÆ.

Exocœtus exiliens, Gmel.—BUTTERFLY FLYING-FISH.—West Indian Fauna and north to Cape Cod.

21410. Alcoholic. Bermudas. G. Brown Goode. Mar., 1872.

Exocœtus noveboracensis, Mitch.?—BLACK-WINGED FLYING-FISH.—Cape Cod to Florida.

——. Alcoholic. Block Island, R. I. U. S. Fish Commission. Aug., 1874.

Exocœtus Rondeletii, Cuv. & Val.—Mediterranean and Atlantic.

21409. Alcoholic. Bermudas. G. Brown Goode.

Cypselurus furcatus, (Mitch.) Weinland.—BEARDED FLYING-FISH.—Atlantic.

21412. Alcoholic. Bermudas. G. Brown Goode.

Euleptorhamphus longirostris, (Cuv. & Val.) Gill.—Cape Cod to Florida.

15648. Alcoholic. Newport, R. I. Mr. Brown.

Scomberesox scutellatus, Les.—HALF-BEAK; SKIPPER.—Nova Scotia to Florida.

13164. Cast.
410, 539. Color sketches. (Richard.) U. S. Fish Commission.

HAPLOMI.

ESOCIDÆ.

Esox americanus, Gmelin.—BROOK PICKEREL.—Massachusetts to Maryland.

17766. Alcoholic. Keeseville, N. Y. H. N. Hewitt.
796. Color sketch. (Richard.) U. S. Fish Commission.
493. Color sketch. Prof. Alex. Agassiz.

Esox reticulatus, Lesueur.—PICKEREL.—Atlantic slope, New England to Alabama.

15012. Cast. Washington, D. C. G. Brown Goode.
222. Photograph. U. S. Fish Commission.
758. Color sketch. U. S. Fish Commission.
619. Color sketch. (Roetter.) East Wareham, Mass. Museum of Comp. Zoology. Feb., 1869.

Esox lucius, Linn.—PIKE.—Northern America, Asia, and Europe.

14876. Cast. Sandusky, Ohio. J. W. Milner. Oct. 25, 1873.
14875. Cast. Sandusky, Ohio. J. W. Milner. Nov. 3, 1873.
219. Photograph. U. S. Fish Commission.
618. Color sketch. (Roetter.) Museum of Comp. Zoology. Sackett's Harbor. Nov., 1869.
494. Color sketch. Prof. Alex. Agassiz.

Esox nobilior, Thompson.—MUSKELLUNGE (weight 37 pounds).—Great Lakes and Southern British Provinces east of Rocky Mountains.

14895. Cast. Sandusky, Ohio. J. W. Milner. Oct., 1873.
220, 221. Photographs. U. S. Fish Commission.

CYPRINODONTIDÆ.

Cyprinodon variegatus, Lac.—SHORT CYPRINODON.—Cape Cod to Florida.

13986. Alcoholic. Noank, Conn. U. S. Fish Commission.

Fundulus pisculentus, (Mitch.) Val.—MUMMICHOG.—Nova Scotia to Florida.

13970. Alcoholic. Noank, Conn. U. S. Fish Commission.
434, 797. Color sketches. (Richard.) U. S. Fish Commission.

Hydrargyra majalis, (Walb.) Val.—MAY-FISH.—Brackish waters; Cape Ann to Cape Hatteras.

223–383. Photographs. U. S. Fish Commission.
13974. Alcoholic. Noank, Conn. U. S. Fish Commission.
434. Color sketch. (Richard.) U. S. Fish Commission.

ISOSPONDYLI.

SYNODONTIDÆ.

Synodus fœtens, (Linn.) Gill.—SNAKE-FISH.—Cape Cod to Florida.

16583. Cast. New York market. E. G. Blackford. Sept. 24, 1875.
424. Color sketch. (Richard.) U. S. Fish Commission.

MICROSTOMIDÆ.

Mallotus villosus, (Müll.) Cuv.—CAPELIN.—Polar Seas and south to Nova Scotia.

3417. Alcoholic. Gross Water Bay. Dr. E. Coues.

Osmerus pacificus, (Rich.)—OULACHAN; CANDLE-FISH.—North Pacific.

20584. Alcoholic. Washington Ter. U. S. Fish Commission.

Osmerus mordax, (Mitch.) Gill.—SMELT; FROST-FISH.—Nova Scotia to Cape Hatteras.

385. Photograph. U. S. Fish Commission.
507. Color sketch. (Richard.) U. S. Fish Commission.
13863. Alcoholic. Eastport, Me. U. S. Fish Commission.

Argentina syrtensium, Goode & Bean.—WESTERN ARGENTINE.—Deep-sea Fauna of Western Atlantic.

21624. Alcoholic. Sable Island Bank. Capt. J. W. Collins.

COREGONIDÆ.

Coregonus clupeiformis, (Mitch.) Milner. — WHITE-FISH.—Great Lakes and British America.

16741. Cast. Michigan.
14973. Cast. Ecorse, Mich. George Clark.
15741. Cast. Ecorse, Mich. George Clark.
14864. Cooperstown, N. Y. Elihu Phinney.
224, 225, 226, 227, 228, 229, 230. Photographs. U. S. Fish Commission.

Coregonus labradoricus, Rich.—LAKE WHITING.—Northern Lakes.

232. Photograph. U. S. Fish Commission.
16868. Alcoholic. Lake Winnepiscogee, Me. U. S. Fish Commission.

Prosopium quadrilaterale, (Rich.) Milner.—"SHAD-WAITER."—Great Lakes and northward.

233. Photograph. U. S. Fish Commission.
12360. Alcoholic. Grand Lake, Me. U. S. Fish Commission.

Prosopium Couesii, Milner.—CHIEF MOUNTAIN LAKE WHITE-FISH.—Upper Missouri Region.

14146. Alcoholic. Chief Mountain Lake. Dr. Elliott Coues, U. S. A.

Argyrosomus Artedi, (Les.) Hoy.—HERRING WHITE-FISH.—Great Lakes, etc.

235. Photograph. U. S. Fish Commission.
752. Color sketch. (Richard.) U. S. Fish Commission.
11195. Alcoholic. Au Sable, Michigan. U. S. Fish Commission.

SALMONIDÆ.

Salmo salar, Linn.—SALMON.—Northern America and Europe.

14898. Cast. Bucksport, Me. Joseph Palmer. July 1, 1873.
16744. Cast. Bucksport, Me. C. G. Atkins. Nov., 1873.
16743. Cast. Bucksport, Me. C. G. Atkins. Nov., 1873.
10314. Cast. Bucksport, Me. C. G. Atkins. July 1, 1873.
239, 240, 241, 242. Photographs. U. S. Fish Commission.
415. Water-color sketch. U. S. Fish Commission.

Salmo salar, *var.* **sebago**, Girard.—SEBAGO SALMON (land-locked.)—St. Croix River and Sebago Lake. Introduced into other lakes.

15467. Cast. Sysladobsis Lake, Me. "Dobsis Club," through Judge Harvey Jewell. June, 1875.
15977. Cast.
15978. Cast.
535–6. Color sketches. (Richard.) U. S. Fish Commission.

Salmo fario, Linn.—RIVER TROUT.—Rivers of Europe.

252. Photograph. U. S. Fish Commission.

Oncorhynchus quinnat, (Rich.) Günther.—QUINNAT or SACRAMENTO SALMON.—Northwest Coast of America; south to California.

10340. Cast. New York market. E. G. Blackford.
10347. Cast. Sacramento River, Cal. L. Stone. March, 1873.
248, 249, 250, 251. Photographs. U. S. Fish Commission.
416. Color sketch. (Richard.) U. S. Fish Commission.

Cristivomer namaycush, (Penn.) Gill & Jordan.—NAMAYCUSH TROUT; LAKE TROUT.—Northern Lakes.

246, 247. Photographs. U. S. Fish Commission.
10312. Cast. Moosehead Lake, Me. E. M. Stillwell.
16670–71. Casts. Lake Winnepiseogee. U. S. Fish Commission.
463, 526–7. Color sketches. (Richard.) U. S. Fish Commission.

Salvelinus fontinalis, (Mitch.) Gill & Jordan.—BROOK TROUT.—Rivers and Lakes of British North America and of the northern parts of the United States and Appalachian Range.

16626. Cast. Wood's Holl, Mass. V. N. Edwards.
15961. Cast. Sysladobsis Lake, Me. "Dobsis Club," through Judge Harvey Jewell. June, 1875.
15728. Cast. New York market. E. G. Blackford. March 22, 1875.
10311. Cast. New York market. E. G. Blackford. March 22, 1875.
15470. Cast. Sysladobsis Lake, Me. "Dobsis Club," through Judge Harvey Jewell. June, 1875.
243, 244. Photographs. U. S. Fish Commission.
751. Color sketch. (Richard.) U. S. Fish Commission.
26792. Mounted. (Male.) Rangely Lake, Me. Geo. Shepard Page. Weight 10 pounds. The largest Brook Trout on record. Taken by Geo. Shepard Page in 1867. Transported alive in a box of water (which also contained a female trout weighing 8¼ pounds) to Stanley, Morris Co., New Jersey.

Salvelinus oquassa, (Girard) Gill & Jordan.—OQUASSA TROUT.—Rangely Lake, Me., and vicinity.

245. Photograph. U. S. Fish Commission.
549. Color sketch. (Richard.) U. S. Fish Commission.
750. Color sketch. (Richard.) U. S. Fish Commission.

Thymallus tricolor, Cope.—MICHIGAN GRAYLING.—Northern portion southern peninsula of Michigan.

15226. Cast. Au Sable River, Mich. Fred. Mather. April 7, 1875.
236, 238. Photographs. U. S. Fish Commission.

ALBULIDÆ.

Albula vulpes, (Linn.) Goode.—LADY-FISH.—Pelagic; Tropical and Subtropical Seas.

255. Photograph. U. S. Fish Commission.
21859. Alcoholic. Wood's Holl, Mass. U. S. Fish Commission.

HYODONTIDÆ.

Hyodon tergisus, Les.—MOON-EYE.—Great Lakes and Mississippi Valley.

15561. Cast. New York market. E. G. Blackford. Nov. 15, 1875.
14863. Cast. Cincinnati, Ohio. J. W. Milner. Nov., 1873.
253, 254. Photographs. U. S. Fish Commission.
753. Color sketch. (Richard.) U. S. Fish Commission.

ELOPIDÆ.

Elops saurus, Linn.—BIG-EYED HERRING.—Tropical and Subtropical Seas.

15824. Cast. New York market. E. G. Blackford. Oct. 11, 1875.
15821. Cast. New York market. E. G. Blackford. Oct. 11, 1875.
15823. Cast. New York market. E. G. Blackford. Oct. 11, 1875.
15822. Cast. New York market. E. G. Blackford. Oct. 14, 1875.
15744. Cast. New York market. E. G. Blackford. Oct. 14, 1875.
15824. Cast. New York market. E. G. Blackford. Oct. 11, 1875.
256. Photograph. U. S. Fish Commission.
772. Color sketch. (Richard.) U. S. Fish Commission.

Megalops thrissoides, (Schn.) Günther.—TARPUM.—Cape Cod to Florida.

14924. Cast. New Jersey. E. G. Blackford. July 9, 1874.
398. Photograph. Newport, R. I. S. Powell. Aug., 1874.

DUSSUMIERIDÆ.

Etrumeus teres, (DeKay) Brevoort.—ROUND HERRING.—Cape Cod to Cape Hatteras.

20216. Alcoholic. Newport, R. I. S. Powel.

CLUPEIDÆ.

Brevoortia tyrannus, (Latr.) Goode.—MENHADEN; MOSSBUNKER; POGIE.—Newfoundland to Gulf of Mexico.

10696. Cast. Wood's Holl, Mass. U. S. Fish Commission.
16313. Cast. Wood's Holl, Mass. U. S. Fish Commission. Aug., 1875.
257, 258, 259, 260, 386, 387. Photographs. U. S. Fish Commission.
564. Color sketch. Prof. Alex. Agassiz.

Brevoortia patronus, Goode.—GULF MENHADEN.—Gulf of Mexico.

892. Alcoholic. Brazos Santiago, Texas.

Alosa sapidissima, (Wilson) Storer.—SHAD.—Newfoundland to Florida.

10641. Cast. Potomac River. J. W. Milner. 1873.
10625. Cast. Potomac River, D. C. J. W. Milner.
14878. Cast. Connecticut River. E. G. Blackford. May 7, 1874.
261, 262, 263, 264, 265. Photographs. U. S. Fish Commission.

Opisthonema thrissa, Gill.—THREAD HERRING.—West Indian Fauna and north to Cape Cod.

20218. Alcoholic. Newport, R. I. U. S. Fish Commission.

Pomolobus pseudoharengus, (Wilson) Gill.—ALEWIFE; FRESHWATER HERRING; GASPEREAU.—Newfoundland to Florida.

10622. Cast. (Female.) Wood's Holl, Mass. U. S. Fish Commission.
266, 267, 268, 269, 386. Photographs. U. S. Fish Commission.
457. Color sketch. (Richard.) U. S. Fish Commission.

Pomolobus mediocris, (Mitch.) Gill.—MATTAWOCCA; TAILOR HERRING; SEA SHAD.—Newfoundland to Florida.

10657. Cast. Potomac River. J. W. Milner. 1873.
269, 270, 271. Photographs. U. S. Fish Commission.
458, 771. Color sketches. (Richard.) U. S. Fish Commission.

Clupea harengus, Linn.—HERRING; SEA HERRING.—North Atlantic.

399. Photograph. U. S. Fish Commission.
13855. Alcoholic. Eastport, Me. U. S. Fish Commission.

Clupea mirabilis, Girard.—HERRING.—Coast of California.

605. Color sketch. Galians Id., Gulf of Georgia, W. T. Prof. Alex. Agassiz. June, 1859.

DOROSOMIDÆ.

Dorysoma Cepedianum, (Lac.) Gill.—MUD SHAD; WINTER SHAD.—Cape Cod to St. John's River, Fla.

14991. Cast. Potomac River. G. Brown Goode. March 1, 1875.
15695. Cast. Washington market. G. Brown Goode. Dec., 1874.
272, 273. Photographs. U. S. Fish Commission.
798. Color sketch. (Richard.) U. S. Fish Commission.

Dorysoma Cepedianum, *var.* **heterurum,** (Raf.) Jordan.—OHIO GIZZARD SHAD.—Ohio River and Lower Mississippi.

20836. Alcoholic. Sarnia, Lake Huron. S. Wilmot.

ENGRAULIDIDÆ.

Engraulis vittata, (Mitch.) B. & G.—ANCHOVY.—Cape Cod to Cape Hatteras.

382. Photograph. U. S. Fish Commission.
14086. Alcoholic. Watch Hill, R. I., &c. U. S. Fish Commission.

EVENTOGNATHI.

CATOSTOMIDÆ.

Catostomus teres, (Mitchill) Les.—COMMON SUCKER.—Eastern Northern America.

279. Photograph. U. S. Fish Commission.
18258. Alcoholic. Potomac River. U. S. Fish Commission.

Myxostoma macrolepidotum, (Les.) Jordan.—STRIPED SUCKER.—Mississippi Valley and Great Lakes.

15930. Cast. Washington market. J. W. Milner.
16786. Cast. Washington market. J. W. Milner.
16785. Cast. Washington market. J. W. Milner.
278. Photograph. U. S. Fish Commission.

Cycleptus elongatus, (Les.) Ag.—BLACK SUCKER.—Mississippi Valley.

16781. Cast. Ohio River. J. W. Milner. Nov. 5, 1875.
280. Photograph. U. S. Fish Commission.

Erimyzon sucetta, (Lac.) Jordan.—CHUB SUCKER.—Eastern United States.

281. Photograph. U. S. Fish Commission.

Erimyzon Goodei, Jordan.—GOODE'S SUCKER.—Florida.

19071. Alcoholic. St. John's River, Fla. G. Brown Goode.

Bubalichthys bubalus, Ag.—BUFFALO-FISH.—Mississippi Valley.

14883. Cast. Cincinnati, Ohio. J. W. Milner. Nov. 5, 1873.

Carpiodes cyprinus, (Les.) Ag.—CARP.—Eastern United States.

10735. Cast. Potomac River, D. C. J. W. Milner.
16780. Cast. Sandusky, Ohio. J. W. Milner. Nov. 3, 1875.

CYPRINIDÆ.

Ptychocheilus grandis, (Ayres) Girard.—"PIKE."—Pacific Slope.

282. Photograph. U. S. Fish Commission.

Notemigonus americanus, (Linn.) Jordan.—SHINER.—Southern Rivers.

19063. Alcoholic. St. John's River, Fla. G. Brown Goode.

Notemigonus chrysoleucus, (Mitch.) Jordan.—SHINER.—Eastern Atlantic States.

435. Color sketch. (Richard.) U. S. Fish Commission.

Leuciscus pulchellus, Storer.

630. Color sketch. (Burkhardt.) New Bedford, Mass. Prof. Alex. Agassiz. 1861.

Carassius auratus, (Linn.) Bleeker.—GOLD-FISH.—Domesticated; native of China and Japan.

16667. Cast. Washington, D. C. J. H. Richard.
18290. Alcoholic. Ponds of Maryland. U. S. Fish Commission.

ORDER NEMATOGNATHI.

SILURIDÆ.

Ælurichthys marinus, (Mitch.) B. & G.—FORK-TAILED CAT-FISH.—Cape Cod to Florida; Gulf of Mexico.

15575. Cast. New Bedford, Mass. U. S. Fish Commission. Oct. 11, 1875.
283, 284, 285. Photographs. U. S. Fish Commission.
522. Color sketch. (Richard.) U. S. Fish Commission.

Amiurus catus, (Linn.) Gill.—HORN POUT.—Eastern North America.

466. Color sketch. Prof. Alex. Agassiz. Natural size drawing by P. Roetter from a fresh specimen, East Wareham, Mass., Feb., 1869; weight, 1½ lbs. "S. T. Tisdale says he has seen the young of this species following the mother like a brood of chickens."—*Ms. note.*

Ichthælurus furcatus, (C. & V.) Gill.—CHANNEL CAT-FISH.—Mississippi Valley.

15690. Cast. Carrollton, Ky. J. W. Milner.
15787. Cast. Carrollton, Ky. J. W. Milner. Nov. 5, 1873.

Pelodichthys olivaris, (Raf.) Gill & Jordan.—MUD CAT-FISH.—Ohio Valley to Iowa and south.

15689. Cast. Carrollton, Ky. J. W. Milner. Nov. 5, 1875.

Order APODES.

CONGRIDÆ.

Conger oceanica, (Mitch.) Gill.—Conger Eel.—Newfoundland to West Indies.

14873. Cast. Weight 11 lbs. Block Id., R. I. U. S. Fish Commission. Sept. 26, 1874.
14872. Cast. Block Island, R. I. U. S. Fish Commission. Sept. 26, 1874.
287. Photograph. U. S. Fish Commission.

ANGUILLIDÆ.

Anguilla rostrata, (Les.) DeKay.—Common Eel.—Eastern United States.

15731. Cast. New York. E. G. Blackford. Aug. 26, 1874.
16392. Cast. New York. E. G. Blackford. Aug. 26, 1874.
16729. Cast. Potomac River. J. W. Milner.
16416. Cast. Wood's Holl, Mass. Wm. Palmer. Sept. 6, 1875.
10749. Cast. Wood's Holl, Mass. V. N. Edwards.
286. Photograph. U. S. Fish Commission.
480–81. Color sketches. (Richard.) U. S. Fish Commission.
773. Color sketch. Prof. Alex. Agassiz.

NEMICHTHYIDÆ.

Nemichthys scolopaceus? Rich.—Snipe Eel.—Deep waters of the Atlantic.

21195. Alcoholic. George's Bank. U. S. Fish Commission.

SYNAPHOBRANCHIDÆ.

Synaphobranchus pinnatus, (Gronow) Günther.—Madeira Eel.—Deep waters of the Atlantic.

21848. Alcoholic. Sable Island Bank. U. S. Fish Commission.

Order CYCLOGANOIDEI.

AMIIDÆ.

Amia calva, Linn.—Mud-fish.—Central and Southeastern United States.

11134. Cast. Sandusky, Ohio. J. W. Milner.
16534. Cast. New York market. E. G. Blackford. Sept. 24, 1875.
288,289. Photograph. U. S. Fish Commission.
556. Color sketch. (Burkhardt.) Charleston, S. C. Prof. Alex. Agassiz. 1853.

Order RHOMBOGANOIDEI.

LEPIDOSTEIDÆ.

Lepidosteus osseus, Linn.—Gar Pike.—Mississippi Valley and Atlantic States south of Delaware River.

10736. Cast. Sandusky, Ohio. J. W. Milner.
10717. Cast. Sandusky, Ohio. J. W. Milner.
15366. Cast. Potomac River. J. W. Milner.
290, 291. Photographs. U. S. Fish Commission.

Lepidosteus platystomus, Raf.—Short-nosed Gar Pike.—Great Lakes and streams south and west to the Rocky Mountains.

3241. Alcoholic. Cleveland, Ohio. Prof. Baird.

Order SELACHOSTOMI.

POLYODONTIDÆ.

Polyodon folium, Lac.—Paddle-fish.—Fresh waters of Mississippi Valley.

14871. Cast. Cincinnati, Ohio. J. W. Milner. Nov. 5, 1873.
15475. Cast. Madison, Ind. George Spangler. June, 1875.
292. Photograph. U. S. Fish Commission.

Order CHONDROSTEI.

ACIPENSERIDÆ.

Acipenser sturio, Linn.—Sharp-nosed Sturgeon.—North Atlantic; ascending rivers.

15745. Cast. New York. E. G. Blackford.
14866. Cast. Wood's Holl, Mass. U. S. Fish Commission.
14877. Potomac River. J. W. Milner.
293, 294. Photographs. U. S. Fish Commission.
519. Color sketch. (Richard.) U. S. Fish Commission.

Acipenser brevirostris, Les.—Short-nosed Sturgeon.—Atlantic Coast of United States.

295, 296. Photographs. U. S. Fish Commission.
520. Color sketch. (Richard.) U. S. Fish Commission.

Acipenser rubicundus, Les.—Lake Sturgeon.—Great Lakes and south.

297, 298, 299, 300, and 301. Photographs. U. S. Fish Commission.

Acipenser maculosus, Les.—LONG-NOSED STURGEON.—Great Lakes and Western Rivers.

607–8. Color sketch. Huntsville, Ala. Prof. Alex. Agassiz. 1853.

Scaphyrhynchops platyrhynchus, (Raf.) Gill.—SHOVEL-NOSED STURGEON.—Mississippi Valley.

15939½. Cast. Ohio River. J. W. Milner.
15939. Cast. Ohio River. J. W. Milner.
15476. Cast. Madison, Ind. George Spangler. June, 1875.
302, 303. Photographs. U. S. Fish Commission.

VI. ELASMOBRANCHIATES.

ORDER HOLOCEPHALI.

CHIMÆRIDÆ.

Chimæra plumbea, Gill.—BROWN CHIMÆRA.—Deep waters of Western Atlantic.

21904. Cast. Banquereau. Capt. Joseph W. Collins.

Hydrolagus Collici, (Bennett) Gill.—PACIFIC CHIMÆRA.—Northwest coast of North America.

993. Alcoholic. Puget Sound. Dr. George Suckley.

ORDER RAIÆ.

MYLIOBATIDÆ.

Myliobatis Fremenvillei, (Les.) Storer.—EAGLE RAY.—Cape Cod to Florida.

16603. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 23, 1875.
14417. Cast. Wood's Holl, Mass. U. S. Fish Commission.
306–319. Photographs. U. S. Fish Commission.
760. Color sketch. U. S. Fish Commission.

Myliobatis californicus, Gill.—CALIFORNIA STING RAY.—Coast of California.

16687. Cast. San Francisco, Cal. L. Stone.
320. Photograph. U. S. Fish Commission.
959. Color sketch. U. S. Fish Commission.

Rhinoptera quadriloba, (Les.) Cuv.—COW-NOSED RAY.—Cape Cod to Florida.

304, 305. Photographs. U. S. Fish Commission.

TRYGONIDÆ.

Trygon centrura, (Mitch.) Gill.—STING RAY.—Cape Cod to Florida.

14920. Cast. Wood's Holl, Mass. U. S. Fish Commission. June, 1873.
14882. Cast. Portland, Me. Skillings.
324, 325, 326, 327, 328, 329. Photographs. U. S. Fish Commission.

Trygon Sabina, Lesueur.—RIVER STING RAY.—Southern Coast entering rivers.

18068. Alcoholic. Lake Monroe, Fla. Prof. Baird.

Trygon hastata, (De Kay) Storer.—SMOOTH STING RAY.—Southern Coast.

21626. Skin. West Florida. Dr. J. W. Velie.

Pteroplatea maclura, Mull. & Henle.—BUTTERFLY RAY.—Cape Cod to Florida.

16319. Cast. Wood's Holl, Mass. U. S. Fish Commission. Aug. 5, 1875.
321, 322, 323. Photographs. U. S. Fish Commission.

TORPEDINIDÆ.

Torpedo occidentalis, Storer.—TORPEDO; CRAMP-FISH.—Cape Cod to Florida.

14912. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 22, 1873.
14919. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 5, 1873.
16665. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 5, 1873.
330, 331, 332, 333, 334, 335. Photographs. U. S. Fish Commission.

RAIIDÆ.

Raia erinacea, Mitchill.—CLEAR-NOSED SKATE.—Nova Scotia to Florida.

343, 344, 345, 346. Photographs. U. S. Fish Commission.
14881. Cast. Portland, Me. U. S. Fish Commission.
10612. Cast. Wood's Holl, Mass. V. N. Edwards.
16508. Cast. Wood's Holl, Mass. V. N. Edwards. May 14, 1873.
336, 337, 338, 339, 340, 341, 342. Photographs. U. S. Fish Commission.
408, 409. Color sketches. (Richard.) U. S. Fish Commission.
761–2–3. Color sketches. U. S. Fish Commission.
768–9. Color sketches. U. S. Fish Commission.
774–5. Color sketches. Prof. Alex. Agassiz.

Raia ocellata, Mitchill.—SPOTTED SKATE.—New England Coast.

19434. Alcoholic. Nahant, Mass. Mus. of Comp. Zoology.

Raia radiata, Donovan.—SPINY SKATE.—Northern Atlantic.

19432. Alcoholic. Nahant, Mass. Mus. of Comp. Zoology.

Raia eglanteria, Lacep.—EGLANTINE SKATE.—Cape Ann and southward.

19439. Alcoholic. S. New England. Mus. of Comp. Zoology.

Raia lævis, Mitch.—SHARP-NOSED SKATE.—Nova Scotia to Florida.

14904. Cast. (Young male.) Montauk Point, N. Y. U. S. Fish Commission. Aug. 1, 1874.
402. Color sketch. U. S. Fish Commission.
15704. Cast. (Young.) Noank, Conn. U. S. Fish Commission. Aug. 1, 1874.
15703. Cast. Noank, Conn. U. S. Fish Commission.
16658. Cast. (Young male.)
15707. Cast.
16659. Cast.
347, 348, 349, 350, 351. Photographs. U. S. Fish Commission.

RHINOBATIDÆ.

Rhinobatus productus, Girard.—LONG-NOSED SKATE.—Coast of California.

16704. Cast. San Francisco, Cal. L. Stone.
352. Photograph. U. S. Fish Commission.

PRISTIDÆ.

Pristis antiquorum, (Linn.) Lath.—SAW-FISH.—Cape Cod to Florida; Tropical Seas.

12453. Stuffed skin. Florida. H. A. Ward.

SQUATINIDÆ.

Squatina Dumerili, Les.—MONK-FISH; FIDDLE-FISH.—Cape Cod to Florida; Temperate and Tropical Seas.

14890. Cast. Wood's Holl, Mass. V. N. Edwards. Sept. 1, 1873.
16410. Cast. Menemsha Bight, Mass. Jason Luce. Sept. 1, 1875.
353, 354, 355. Photographs. U. S. Fish Commission.

ORDER SQUALI:

LAMNIDÆ.

Lamna cornubica, (Gmel.) Fleming.—PORBEAGLE SHARK.—Atlantic, Mediterranean, Japan.

21856. Alcoholic. Gloucester, Mass. U. S. Fish Commission.

Isuropsis Dekayi, Gill. (d. s.)—MACKEREL SHARK.—Newfoundland to Florida.

15949. Cast. Wood's Holl, Mass. V. N. Edwards. Sept. 20, 1873.
15973. Cast. Wood's Holl, Mass. V. N. Edwards. Dec., 1875.
446. Color sketch. (Richard.) U. S. Fish Commission.

Carcharodon Atwoodi, (Storer) Gill.—ATWOOD'S SHARK; MAN-EATER.—Newfoundland to Florida.

——. Jaws.

Cynocephalus glaucus, (Linn.) Gill.—BLUE-HEADED SHARK.—Atlantic.

19929. Alcoholic. Wood's Holl, Mass. V. N. Edwards.

ODONTASPIDIDÆ.

Eugomphodus littoralis, Gill.—SAND SHARK.—Pelagic.

16647. Cast. Wood's Holl, Mass. U. S. Fish Commission.
16648. Cast. Wood's Holl, Mass. U. S. Fish Commission.
419. Color sketch. (Richard.) U. S. Fish Commission.
445. Color sketch. (Richard.) U. S. Fish Commission.

ALOPECIDÆ.

Alopias vulpes, (Linn.) Bon.—THRESHER; SWINGLE-TAIL.—Atlantic and Mediterranean.

16256. Cast. Menemsha Bight, Mass. U. S. Fish Commission. July 30, 1875.
15733. Cast. Wood's Holl, Mass. U. S. Fish Commission.
417. Color sketch. (Richard.) U. S. Fish Commission.

SPHYRNIDÆ.

Sphyrna zygæna, (Linn.) Mull. & Henle.—HAMMER-HEAD SHARK.—Tropical and Subtropical Seas.

15833. Cast. Noank, Conn. U. S. Fish Commission.
360, 361, 362, 363, 364. Photographs. U. S. Fish Commission.
462. Color sketch. (Richard.) U. S. Fish Commission.

Reniceps tiburo, (Linn.) Gill.—SHOVEL-HEAD SHARK.—Atlantic and Western Pacific.

12714. Cast.
——. Alcoholic. Beesley's Point, N. J. S. F. Baird.

GALEORHINIDÆ.

Eulamia Milberti, (Mull. & Henle) Gill.—BLUE SHARK.—Cape Cod to Florida.

15742. Cast. Wood's Holl, Mass. V. N. Edwards.
366, 367, 368, 369. Photographs. U. S. Fish Commission.
418. Color sketch. (Richard.) U. S. Fish Commission.

Eulamia obscurus, (Les.) Gill.—DUSKY SHARK.—Cape Cod to Florida.

16070. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 10, 1875.

Isogomphodon maculipinnis, Poey.—SPOTTED-FIN SHARK.—Tropical and Subtropical Seas.

356, 357, 358, 359. Photographs. U. S. Fish Commission.
425. Color sketch. (Richard.) U. S. Fish Commission.
16401. Cast. Wood's Holl, Mass. U. S. Fish Commission.

Galeocerdo tigrinus, Mull. & Henle.—TIGER SHARK.—Atlantic; Indian Ocean.

15740. Cast. Wood's Holl, Mass. V. N. Edwards. July 22, 1873.
16069. Cast. Buzzard's Bay, Mass. U. S. Fish Commission. 1875.
370, 371. Photographs. U. S. Fish Commission.

Mustelus canis, (Mitch.) De Kay.—SMOOTH DOG-FISH.—Cape Cod to Cape Hatteras.

14908. Cast. Norfolk, Va. U. S. Fish Commission. June 25, 1873.
14925. Cast. Wood's Holl, Mass. U. S. Fish Commission.
10734. Cast. Wood's Holl, Mass. U. S. Fish Commission.
10733. Cast. Wood's Holl, Mass. U. S. Fish Commission.
16649. Cast. (Male.) Wood's Holl, Mass. U. S. Fish Commission.
372, 373, 374, 375. Photographs. U. S. Fish Commission.
——. Color sketches. (Richard.) U. S. Fish Commission.

GINGLYMOSTOMATIDÆ.

Ginglymostoma cirratum, (Gmel.) M. & H.—NURSE SHARK.—Tropical Atlantic.

16909. Alcoholic. Chesapeake Bay. Maryland Academy of Science.

SPINACIDÆ.

Squalus americanus, (Storer) Gill.—SPINED DOG-FISH.—Newfoundland to Cape Hatteras.

16255. Cast. Martha's Vineyard. U. S. Fish Commission. July 30, 1875.
376, 377. Photographs. U. S. Fish Commission.
426. Color sketch. (Richard.) U. S. Fish Commission.

Centroscyllium Fabricii, (Reinh.) M. & H.—GREENLAND DOG-FISH.—Deep waters of Western Atlantic.

21622. Cast. Lat. 42° 52′ N., Lon. 63° 50′ W. 220 to 260 fathoms. U. S. Fish Commission.

SCYMNIDÆ.

Somniosus microcephalus, (Bloch.) Gill.—SLEEPER SHARK.—North Atlantic.

378, 379. Photographs. U. S. Fish Commission.
447. Color sketch. (Richard.) U. S. Fish Commission.
16630. Cast. Gulf of St. Lawrence. Renfrew & Co. Nov. 20, 1875.

Centroscymnus cœlolepis, Bocage & Capello.—BLACK DOG-FISH.—Deep waters of North Atlantic.

21621. Cast. Lat. 42° 40′ N., Lon 63° 50′ W. 220 to 260 fathoms. U. S. Fish Commission.

ECHINORHINIDÆ.

Echinorhinus spinosus, (Gmel.) Delamoille.—SPINY SHARK.—North Atlantic.

21913. Cast. Provincetown, Mass. E. E. Small.

VII. MARSIPOBRANCHIATES.

ORDER HYPEROARTIA.

PETROMYZONTIDÆ.

Petromyzon americanus.—LAMPREY EEL.

489–90. Color sketches. Prof. Alex. Agassiz.

ORDER HYPEROTRETI.

MYXINIDÆ.

Myxine glutinosa, Linn.—HAG-FISH; SLIME-FISH.—North Atlantic.

21679. Alcoholic. Le Have Bank, N. B. U. S. Fish Commission.

VIII. LEPTOCARDIANS.

ORDER CIRROSTOMI.

BRANCHIOSTOMIDÆ.

Branchiostoma lubricum, Costa.—LANCELET.—Cosmopolitan.

21877. Alcoholic. Bermudas. G. Brown Goode.

SECTION B.

(THE CHASE AND THE FISHERIES.)

MEANS OF PURSUIT AND CAPTURE.

I. HAND IMPLEMENTS OR TOOLS.

* *For striking.*

1. Clubs.

Unarmed clubs.[1]

Salmon-clubs used by the Indians of the Northwest coast.
Hunting-clubs.[1]
Fishermen's clubs.

32717. "Halibut killer and gob-stick." Philip Merchant, Gloucester, Mass. A heavy club with which the fisherman kills the halibut by a blow upon the head. One end is sharpened for use in detaching hooks from the gullets of fish which have swallowed them.

Armed clubs.[1]

Stone-headed clubs.[1]
Clubs, armed with teeth or bone points.[1]
Clubs, armed with metal points.[1]

2. Slung-weights.

Slung-stones.[1]

Slung-shot.[1]

** *For cutting.*

3. Knives.

Straight knives.

Hunters' knives.

26152.	Hunter's knife.	5½-inch blade.	John Russell Cutlery Co., Turner's Falls, Mass.
26153.	Hunter's knife.	6-inch blade.	"
26154.	Hunter's knife.	7-inch blade.	"
26155.	Hunter's knife.	8-inch blade.	"
26172.	Hunter's knife.	5½-inch blade.	"
26173.	Hunter's knife.	6-inch blade.	"
26174.	Hunter's knife.	6½-inch blade.	"
26175.	Hunter's knife.	8-inch blade.	"
26191.	Hunter's knife.	5-inch blade.	"
26192.	Hunter's knife.	6-inch blade.	"
26193.	Hunter's knife.	7-inch blade.	"
26194.	Hunter's knife.	8-inch blade.	"

[1] Displayed in the Ethnological division.

Straight knives.

Hunters' knives.

26220.	Hunter's knife.	5-inch blade.	John Russell Cutlery Co., Turner's Falls, Mass.
26221.	Hunter's knife.	6-inch blade.	"
26222.	Hunter's knife.	7-inch blade.	"
26223.	Hunter's knife.	8-inch blade.	"
26224.	Hunter's knife.	10-inch blade.	"
26145.	Hunter's knife.	5½-inch blade.	"
26146.	Hunter's knife.	6-inch blade.	"
26147.	Hunter's knife.	7-inch blade.	"
26148.	Hunter's knife.	8-inch blade.	"
26160.	Hunter's knife.	5-inch blade.	"
26161.	Hunter's knife.	6-inch blade.	"
26162.	Hunter's knife.	7-inch blade.	"
26163.	Hunter's knife.	8-inch blade.	"
26164.	Hunter's knife.	9-inch blade.	"
26165.	Hunter's knife.	10-inch blade.	"
26166.	Hunter's knife.	11-inch blade.	"
26167.	Hunter's knife.	12-inch blade.	"
26156.	Hunter's knife.	5-inch blade.	"
26157.	Hunter's knife.	5½-inch blade.	"
26158.	Hunter's knife.	7-inch blade.	"
26202.	Hunter's knife.	5-inch blade.	"
26203.	Hunter's knife.	6-inch blade.	"
26204.	Hunter's knife.	7-inch blade.	"
26205.	Hunter's knife.	8-inch blade.	"
26206.	Hunter's knife.	9-inch blade.	"
26207.	Hunter's knife.	10-inch blade.	"
26208.	Hunter's knife.	12-inch blade.	"

Dudley hunters' knives.

26197.	Hunter's knife.	5-inch blade.	"
26198.	Hunter's knife.	6-inch blade.	"
26199.	Hunter's knife.	7-inch blade.	"
26200.	Hunter's knife.	9-inch blade.	"

Hunters' dirk-knives.

26225.	Hunter's knife (metal guard).	5-inch blade.	"
26226.	Hunter's knife (metal guard).	6-inch blade.	"
26227.	Hunter's knife (metal guard).	7-inch blade.	"
26228.	Hunter's knife (metal guard).	8-inch blade.	"
26143.	Hunter's knife (metal guard).	7-inch blade.	"
26168.	Hunter's knife (solid guard).	7-inch blade.	"

Splitting and ripping knives.

29401. Double-edged throating and ripping knife. A. McCurdy, Gloucester, Mass.

29403. Double-edged throating-knife (old style). G. B. Foster, Beverly, Mass.

29409. Throating or ripping knife. A. McCurdy, Gloucester, Mass.

29411. Throating or ripping knife. Capt. E. L. Rowe, Gloucester, Mass.

Straight knives.

Splitting and ripping knives.

29416. Double-edged ripping-knife (peculiar to coast of Maine). Wilcox, Crittenden & Co., Middletown, Conn.
29402. Mackerel-splitting knife. A. McCurdy, Gloucester, Mass.
29408. Mackerel-splitting knife. Capt. Sam. Elwell, Gloucester, Mass.
29404. Codfish-splitting knife. A. McCurdy, Gloucester, Mass.
29413. Cod or haddock ripping knife (old style). G. P. Foster, Beverly, Mass.
29414. Hake or haddock splitting knife. A. McCurdy, Gloucester, Mass.
29415. Haddock-ripping knife. " "

Flaying-knives, aboriginal and recent.[1]

26169.	Flaying-knife.	5-inch blade.	John Russell Cutlery Co., Turner's Falls, Mass.
26170.	Flaying-knife.	6-inch blade.	" "
26171.	Flaying-knife.	7-inch blade.	" "
26179.	Flaying-knife.	5-inch blade.	" "
26180.	Flaying-knife.	6-inch blade.	" "
26181.	Flaying-knife.	6½-inch blade.	" "
26185.	Flaying-knife.	5-inch blade.	" "
26186.	Flaying-knife.	6-inch blade.	" "
26187.	Flaying-knife.	7-inch blade.	" "
26188.	Flaying-knife.	5-inch blade.	" "
26189.	Flaying-knife.	6-inch blade.	" "
26190.	Flaying-knife.	7-inch blade.	" "
26211.	Flaying-knife.	5-inch blade.	" "
26212.	Flaying-knife.	6-inch blade.	" "
26213.	Flaying-knife.	6½-inch blade.	" "

Blubber-knives, Eskimos.[2]

Boarding-knives used by whalemen.

Used in cutting the blubber into sections from the "blanket piece" or long strip which is peeled from the sides of the whale; for illustration of the manner of use see the model of whaler "cutting in the blubber."

25676. Boarding-knife. W. H. Cook & Co., New Bedford, Mass.
"This knife has seen many years of service."—A. R. C.
26608. Boarding-knife, with sheath. A. R. Crittenden, Middletown, Conn.

Whalemen's boat-knives.

Used to cut the harpoon-line when it gets tangled in paying out.

——. Boat-knife (model). Capt. L. Howland, New Bedford.
This model in its sheath on the bulkhead of the whale-boat, ready for use, is shown in the model of a whale-boat (No. 24880).

Heading-knives.

32689. Halibut-heading knife. Adolph Voss, Gloucester, Mass.

[1] A full series of Eskimo and Indian flaying-knives is displayed in the Ethnological division.

[2] A series of these implements is exhibited in the Ethnological division.

Straight knives.

Finning-knives.

29400. Halibut-finning knife. Alex. McCurdy, Gloucester, Mass.
29412. Halibut-finning knife. Capt. E. L. Rowe, Gloucester, Mass.

Chopping-knives.

29406. Bait-cleaver (used in halibut fishing). Alex. McCurdy, Gloucester, Mass.
32665. Cod-bait knife. Gloucester, Mass. U. S. Fish Commission.
32664. Bait-cleaver. " "

Cheek-knives.

29438. Codfish cheek-knife. Alex. McCurdy, Gloucester, Mass.

Throating-knives.

22669. Cod-throater (single edge). Gloucester, Mass. U. S. Fish Commission.
22670. Cod-throater (double edge). " "

Fish-knives (for general use).

26159. Fish-knife. Heavy. 12-inch blade. John Russell Cutlery Co., Turner's Falls, Mass.
26196. Fish-knife. Hook handle. 12-inch blade. John Russell Cutlery Co., Turner's Falls, Mass.

Scaling-knives.

26210. Saw-blade fish-scaling knife. John Russell Cutlery Co., Turner's Falls, Mass.

Sailors' and fishermen's sheath-knives.

Sailors' sheath-knives. Wilcox, Crittenden & Co., Middletown, Conn.

29428. Sheath and belt, with "law-abiding" sheath-knife. First quality.
29426. Sheath and belt. Second quality.
29427. Sheath and belt, with "law-abiding" sheath-knife. Third quality. The "law-abiding" sheath-knife is round at the tip of the blade, which is also thick and dull.

Hunters' sheath-knives.

The hunting-knives enumerated above, manufactured by the John Russell Cutlery Co., and others like them, are usually provided with sheaths before they are used by hunters.

26665. Hunting-knife, sheath, and belt. Forest & Stream Publishing Co. (Property of John A. Nichols, Syracuse, N. Y.)

Slivering-knives, used by fishermen.

These knives are used to slice the flesh from the sides of the menhaden used for bait. The slices thus prepared are called "slivers," and are salted down in barrels to be used as baits for cod, halibut, and mackerel hooks, or are ground up in the bait-mills, forming "stosh" or "chum," a thick paste which is thrown over the sides of the mackerel-smacks to tole the fish to the surface.

Straight knives.

Slivering-knives, used by fishermen.

29407. Slivering-knife. (Pattern first used by Cape Ann fishermen.) Geo. B. Foster, Beverly, Mass.
29399. Slivering-knife. (Cape Ann pattern.) Alex. McCurdy.
29405. Slivering-knife. (Nantucket pattern.) Samuel Elwell, jr., Gloucester, Mass.
25764. Slivering-knife. Samuel Elwell, jr., Gloucester, Mass.
32666. Slivering-blade. Gloucester, Mass. U. S. Fish Commission.

Flitching-knives.

Used in slicing halibut into steaks or "flitches" in preparation for salting and smoking.

32726. Shore flitching-knife. Gloucester, Mass. U. S. Fish Commission.
32690. Bank flitching-knife. Adolph Voss, Gloucester, Mass.
29410. Flitching-knife. Gloucester, Mass. A. R. Crittenden.

Clam and oyster knives.

26209. Clam-knife. John Russell Cutlery Co., Turner's Falls, Mass.
——. Oyster-knife (model). See model of Chesapeake oyster-canoe (No. 25003).

Net-makers' knives.

These knives are without handles, and the heel of the short (2 inches long) round-pointed blade is curled so as to fit the finger like a ring.

29439. Net-mending knives (right-hand). Alex. McCurdy, Gloucester, Mass.
29440. Net-mending knives (left-hand). Alex. McCurdy, Gloucester, Mass.

Mackerel-rimmers' fatting-knives or ploughs.

Used in creasing the sides of lean mackerel (Nos. 2 and 3) to cause them to resemble fat (No. 1) mackerel.

25768. Mackerel-plough. Edwin Blatchford.
25769. Mackerel-plough. S. Elwell, jr., Gloucester, Mass.
25770. Mackerel-plough. S. Elwell, jr., Gloucester, Mass.
25771. Mackerel-plough. S. Elwell, jr., Gloucester, Mass.
25773. Mackerel-plough. Edward Davis.
25774. Mackerel-plough. Edward Davis.
25775. Mackerel-plough. (Used in 1860.) Mrs. Hannah M. Burt.
25720. Mackerel-plough. Central Wharf Co., Provincetown, Mass.

Splitting-knives.

Used in cleaning fish before salting.

32673. Mackerel-splitting knife. Gloucester, Mass. U. S. Fish Commission.
22667. Cod-splitting knife (curved). " "
22668. Cod-splitting knife (straight). " "

Stone and bone knives used by Indians and Eskimos.

7224. Bone knife. Anderson River Eskimos, Fort Anderson, H. B. T. R. McFarlane.

Straight knives.

Stone and bone knives used by Indians and Eskimos.

16115. Bone knife. Magemut Eskimos, Nunivak Islands, Alaska. W. H. Dall.
2178. Bone knife. Eskimos.
1328. Bone knife. Eskimos.

Harpoon-knives.

16348. Harpoon-knife, with sheath. Magemut Eskimos, Nunivak Islands, [Alaska. W. H. Dall.
16110. Harpoon-knife, with sheath. " "
16105. Harpoon-knife, with sheath. " "
16106. Harpoon-knife, with sheath. " "
19382. Harpoon-knife, with slate blade. " "

Honey-knives.

The thin blade bent at an angle to the handle.

26145. Honey-knife. John Russell Cutlery Co., Turner's Falls, Mass.

Skin scrapers and parers, used in preparing leather.

26144. Tanner's knife. 12-inch blade. John Russell Cutlery Co., Turner's [Falls, Mass.
26195. Tanner's knife. 14-inch blade. " "

4. Axes.

Axes, proper.

Head-axes for whalemen.

Used in cutting off head of whale.

25913. Head-axe. E. B. & F. Macy, New Bedford, Mass.

Whalemen's boat-hatchets.

Used for cutting harpoon-line at the bow, when it becomes tangled in "paying out."

24880. Boat-hatchet. (Model.) Capt. L. Howland, New Bedford, Mass. This implement in its place in the boat is shown in model of whale-boat.
26839. A boat-hatchet may be seen in its proper place in the bow of the large whale-boat.

Cutting-spades.

Whale-spades.

Cutting-spades.

Used in peeling the blubber from the carcass of the dead whale; for illustration see model of "whale-ship cutting in the blubber."

25679. Cutting-spade. E. B. & F. Macy, New Bedford, Mass.
25003. Cutting-spade. J. H. Thomson, New Bedford, Mass.

Cutting-spades.

Throat-spades, flat and round shank.

Used in cutting off the head of the whale.

25925. Throat-spade. E. B. & F. Macy, New Bedford, Mass.

Wide spades.

Used in "blubber-room" for cutting blubber before mincing.

25629. Wide spade. E. B. & F. Macy, New Bedford, Mass.

Half-round spades.

For cutting "blanket" piece, to allow blubber-hook to enter.

25927. Half-round spade. E. B. & F. Macy, New Bedford, Mass.

Head-spades.

Used in cutting off the head of the whale.

25932. Head-spade. E. B. & F. Macy, New Bedford, Mass.

Blubber-mincing spades.

For mincing blubber before trying out.

25912. Hand mince-knife. E. B. & F. Macy, New Bedford, Mass.

Chopping-knives.

Used to chop clams for bait.

29489. Clam-chopper. William H. Hesbolt, Provincetown, Mass.
32676. Clam-chopper. Adolph Voss, Gloucester, Mass.

Bait-mill knives.

Used on the rollers of bait-mincing machines; for mills see section C. 5.

29417. Bait-mill knife. Provincetown pattern. William H. Hesbolt, Provincetown, Mass.
25715. Bait-mill knife. M. W. Grant, Wellfleet, Mass.

Ice-choppers.

Used in chopping ice for packing fish or bait.

32685. Ice-chopper. Adolph Voss, Gloucester, Mass.

Ice-chisels.

Used in cutting holes in the ice for fishing.

25888. Ice-chisel (nickel-plated). Bradford & Anthony, Boston, Mass.

5. Thrusting spears and prods.

Fishing-lances.

Whale-lances.

Used by whalers to give the death-blow to the whale.

25678. Whale-lance with handle, ready for use. E. B. & F. Macy, New Bedford, Mass.
25007. Whale-lance with handle, ready for use. J. H. Thomson, New Bedford, Mass.

Whale-lance, iron.

25611. Whale-lance. (Primitive model) used by New Bedford whalers. W. H. Cook & Co., New Bedford, Mass.

Seal-lances.

10140. Head of lance (bone and iron). Eskimos of Northeast coast, southwest of King William's Land. Capt. C. F. Hall.
1117. Seal-lance. Eskimos of Arctic coast, Anderson River, H. B. T. R. McFarlane.

Fish-lances.

29453. Sword-fish lance. Saml. Elwell, jr., Gloucester, Mass.
32703. Sword-fish lance. Vinald McCaleb. Gloucester, Mass.
25232. Sword-fish lance (with screw to fix folding handles). U. S. Fish Commission.
26519. Lance. Indians of the Northwest coast. J. G. Swan.
The tip of this lance is made from the horn of the mountain-goat (*Mazama montana*).

Whaleman's boat-spades (thick and thin).

Carried in boat to disable the whale by cutting its flukes.

25928. Boat-spade, with handle and warp complete, ready for use. E. B. & F. Macy, New Bedford, Mass.

Prodding instruments.

Snow-probes.

Used by the Eskimos in probing the air-holes in ice and under the snow to detect the presence of seals.

10274. Bone probe.	King William's Land.	Capt. C. F. Hall.
10275. Bone probe.	"	"
10276. Bone probe.	"	"
2000. Bone probe.	Northeastern Coast.	S. F. Baird.
2179. Bone probe.	"	"
2180. Bone probe.	"	"
[1]2181. Bone probe.	"	"

[1] These probes are sometimes supplied with a detachable head.

Prodding-instruments.

Probing-awls.

Used in piercing the base of the brain in killing fish for the table.

29418. Large steel prod, suitable for large fish. A. R. Crittenden, Middletown, Conn.

II. IMPLEMENTS FOR SEIZURE OF OBJECT.

**Scooping-instruments.*

6. Scoops.

†For hand-use.

Shovels.

Clam-shovels.

——. [1]Long-handled shovel. U. S. Fish Commission.
26716. [1]Short-handled shovel. U. S. Fish Commission.

Oyster-shovels.

26717. (Model, with Chesapeake oyster-canoe, No. 25003). T. B. Ferguson, Maryland Commissioner of Fisheries.

Trowels used in taking burrowing shore animals.

——. Collector's trowel (flat). To be supplied.
——. Collector's trowel (round). "

Hand-scoops used in collecting mollusks.

——. [1]Spoon-scoop. U. S. Fish Commission.

Bait-ladles.

32652. "Bait-heaver" (straight). Gloucester, Mass. G. Brown Goode.
32653. "Bait-heaver" (one-sided). " "

Hand-dredges (used in collecting mollusks).

26718. Tin hand-dredge. U. S. Fish Commission.

Pile-scrapers.

26719. Frame of pile-scraper. U. S. Fish Commission.

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[1]It is thought unnecessary to exhibit these familiar implements.

†† *For use with sounding-lines.*[1]

Armed leads.

Common "deep-sea lead."
Deep-sea-sounding apparatus.

Cup-leads.
Scoop sounding-machine.

** *Grasping-hooks.*

7. HOOKED INSTRUMENTS. (Those used with a single motion, that of hooking.)

Single-pointed hooks.

Gaff-hooks.

25495. Salmon-gaff hook and staff. Bradford & Anthony, Boston, Mass.
2668. Gaff-hook. U. S. Fish Commission.
29388. Halibut-gaff. M. W. Grant, Wellfleet, Mass.
32678. Halibut hand-gaff. Gloucester, Mass. G. Brown Goode.
32683. Halibut deck-gaff. " "
25935. Haddock hand-gaff. A. McCurdy, Gloucester, Mass.
29390. Haddock-gaff. M. W. Grant, Wellfleet, Mass.
25938. Codfish-gaff. Used in George's Bank fisheries. A. McCurdy, Gloucester, Mass.
25939. Dory cod-gaff. Used in shore fisheries. A. McCurdy, Gloucester, Mass.
25934. Hand-gaff. Used in halibut fisheries. A. McCurdy, Gloucester, Mass.
29389. Cod-gaff. M. W. Grant, Wellfleet, Mass.
26187. Gaff-hook. Indians of Northwest coast. J. G. Swan.
26380. Gaff-hook. Property of J. H. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Co.
32716. "Pew." Used in handling fish on wharves and decks. Capt. S. J. Martin, Gloucester, Mass.
32685. "Pew-gaff." Used in pitching fish from dories to vessels. Gloucester, Mass. G. Brown Goode.
32730. Fish-fork (three tines, short handle). Gloucester, Mass. G. Brown Goode. Used in pitching fish in a dory, or from hold of vessel.
32691. Halibut-cutter's hook. Used by the "header" in decapitating halibut. Gloucester, Mass. G. Brown Goode.
32684. Fish-fork (two tines). Gloucester, Mass. G. Brown Goode.
32725. "Nape-boner" hook. Used in the preparation of boneless fish. Gloucester, Mass. G. Brown Goode.

Boat-hooks.

Arranged with "Accessories of fishing-boats," B. 48.

Rabbit and squirrel hooks, used by Indians.

——. Squirrel-hooks. Pi-Ute Indians. Southern Utah. J. W. Powell.

[2]Clam-hooks, hoes, and picks used in gathering shell-fish.

[1]See exhibit of Navy Department.
[2]It is thought unnecessary to exhibit these familiar implements.

Single-pointed hooks.

[1]Forks used in handling salted and dried fish.

Whalemen's hooks.

Blubber-hooks.

25930. Blubber-hook. For hauling small pieces of blubber. E. B. & F. Macy. New Bedford, Mass.

26133. Blubber-hook. Alieut Eskimo. Nunivak Island, Alaska. W. H. Dall.

Blubber forks and pikes.

25615. Blubber-pike. Used for tossing blubber into try-kettle. Humphrey S. Kirby, New Bedford, Mass.

25617. Blubber-pike. From the storeroom of a returned whaler. Humphrey S. Kirby, New Bedford, Mass.

Junk-hooks, etc.

For hauling heavy pieces of blubber.

25616. Gaff-hook. Used to haul blubber across the deck from chopper to try-kettle. Humphrey S. Kirby, New Bedford, Mass.

25916. Junk-hook. E. B. & F. Macy, New Bedford, Mass.

[2]Lance-hooks.

Many-pointed hooks.

[2]Can-hooks.

[3]Grappling-irons.

Lip-hooks or grapnels, used by whalers.

25918. Whaler's grapnel. Used for towing whale to ship. E. B. & F. Macy, New Bedford, Mass.

Line-hooks, used by whalers.

25924. Whaler's line-hook for catching line, &c. E. B. & F. Macy, New Bedford, Mass.

Clam-rakes.

29466. Clam-hoe. Provincetown style. Wm. H. Hesbolt, Provincetown, Mass.

29437. Hand-claw. Used for gathering "hen-clams" and "scallops." Wellfleet, Cape Cod, and coast of Maine. M. W. Grant, Wellfleet, Mass.

——. Clam-rake (model). Used in collecting the sea-clam (*Mactra solidissima*) on Nantucket Shoals. These clams are salted down and used as bait for cod, halibut, &c. See with model of Nantucket dory (26257).

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[1]It is thought unnecessary to exhibit these familiar implements.

[2]Arranged with boat fittings.

[3]Arranged with the anchors.

Many-pointed hooks.

Many-pointed fish-jigs.

29436. Mackerel-gaff. Used when the mackerel swim close in large shoals. M. W. Grant, Wellfleet, Mass.
29441. Mackerel-bob. Used when the mackerel are close to the vessel and in large schools. Wm. H. Hesbolt, Provincetown, Mass.

Oulachan rakes or spears.

Used by Indians of the Northwest coast in the capture of the oulachan or candle-fish (*Osmerus pacificus*).
——. Oulachan rake or comb. Flathead Indians. J. G. Swan.

Squid-jigs.

25848. Squid-jig. George P. Steel, Provincetown, Mass.
25714. Squid-jig. " "
25776. Squid-jig. Gloucester style. A. R. Crittenden, Middletown, Conn.
29443. Squid-jig. Over fifty years old. Lemuel Cook, 2d, Provincetown, Mass.
32721. Squid-jig. Capt. R. H. Hurlbert, Gloucester, Mass.
32722. Squid-jig. " "
25683. Squid-line and jig. Used in catching squid for bait. Bradford & Anthony, Boston, Mass.
29447. Molds used in forming squid-jigs. John B. Parsons, Rockport, Mass.

Twisting-rods (used in drawing small mammals from their burrows).

——. Twisting-rod. Virginia.

8. Barbed Implements. (Those used with two motions, the first that of thrusting.)

Spears with fixed heads.

Barbed spears (with single point).

25594. Crab-spear, used about Newport, R. I. J. M. K. Southwick, Newport, R. I.
25595. Flounder-spear. J. M. K. Southwick, Newport, R. I.
——. "Conch" harpoon. Used by Bahamians and fishermen of Key West in the capture of large fish. Dr. J. W. Velie, Chicago, Ill.

Eel-spears.

——. Eel-spear with six prongs for winter fishing. Lent by Bradford & Anthony, Boston, Mass.
25558. Eel-spear with ten prongs for winter fishing. "
25557. Eel-spear for summer fishing. "
25556. Nine fish-spears. "
25224. Eel-spear, used in southern New England. U. S. Fish Commission.
25647. New Bedford eel-spear. H. S. Kirby, New Bedford, Mass.
25606. Eel-spear, Boston pattern. Used on Cape Cod. J. M. K. Southwick, Newport, R. I.

Spears with fixed heads.

Aboriginal fish-spears.

7420. Head of fish-spear. Eskimos. Fort Anderson, Arctic coast. R. McFarlane.
2675. Heads of fish-darts. Eskimos. Mackenzie's River district. R. McFarlane.
7514. Head of fish-spear, made of elk-horn. Eskimos. Northwest coast. Geo. Gibbs.
2322. Head of salmon-spear. Indians. Fort Crook, Oreg. Lieut. John Feimer, U. S. A.
2628. Fish-dart heads. Indians. Columbia River. U. S. Exploring Expedition. Capt. C. Wilkes, U. S. N.
1439. Lance-head of bone. Indians. New Mexico. Lieut. A. W. Whipple, U. S. A.
18933. Fish-spears. Sitka Indians. Sitka. J. G. Swan.
11429. Salmon-spears. Passamaquoddy Indians. Eastport, Me. E. Palmer.
10283. Salmon-spear. Eskimos. Igloolik. Capt. C. F. Hall.
2543. Fish-spear. Tschutschi Indians. South Pacific Exploring Expedition. Capt. John Rodgers, U. S. N.
23518. Three-pronged spear. Northwest coast. J. G. Swan.

Aboriginal bird and fish spears.

19517. Bird-spear. Eskimos. Greenland. Geo. Y. Nickerson.
10267. Bird-spear with throwing-stick. Arctic America. Smithsonian Institution.
15950. Fish-spear. Magemut Eskimos. Nunivak, Alaska. W. H. Dall.
11358. Fish or bird spear. Eskimos. Bristol Bay, Alaska. Vincent Colyer.
15689–90–91–93–94–95–96. Bird-spears. Eskimos. Nunivak Islands, Alaska, W. H. Dall.
7973–7997. Fish and bird spears. Mushegay Indians. Alaska. Smithsonian Institution.

Spears with detachable heads.

Lily-irons.

25230. Sword-fish lily-iron. Capt. John B. Smith. U. S. Fish Commission.
25645. Sword-fish dart and socket, peculiar to New Bedford. A. R. Crittenden, Middletown, Conn.
32714. Sword-fish lily-iron. Adolph Voss, Gloucester, Mass.
32715. Sword-fish lily-iron. " "
25208. Swordfish-dart head. Wilcox, Crittenden & Co., Middletown, Conn.
——. "Turtle-peg" harpoon. Key West, Fla. Dr. J. W. Velie, Chicago, Ill.

Eskimo harpoons of stone, bone, and iron.

14255. Iron harpoon-head, with line of walrus hide. Eskimos. Smith Sound. Capt. C. F. Hall.
10120. Harpoon-head, brass and iron. Eskimos. Victoria Harbor. Capt. C. F. Hall.
9838. Harpoon-heads of bone and iron. Eskimos. Northeast coast. S. F. Baird.

Spears with detachable heads.

Eskimo harpoons of stone, bone, and iron.

19522. Harpoon-head of stone and bone. Eskimos. Greenland. Geo. Y. Nickerson.

10136. Head of walrus-harpoon. Eskimos. Igloolik. Capt. C. F. Hall.

10400. Head of seal-harpoon. Eskimos. Igloolik. Capt. C. F. Hall.

10407. Bone harpoon-head. Eskimos. King William's Sound. Capt. C. F. Hall.

10404. Part of ancient Innuit harpoon-head. Repulse Bay. Capt. C. F. Hall.

10273. Handle of whaling-harpoon made of bone and wood. Eskimos. Greenland. Smithsonian Institution.

19519. Handle of whaling-harpoon made of wood and bone. Eskimos. Greenland. Geo. Y. Nickerson.

10265. Whaling-harpoon. Eskimos. Northwest coast. Smithsonian Institution.

19518. Whaling-harpoon of recent manufacture, with head of bone and iron, handle of wood and iron, and seal-skin line. Eskimos. Greenland. Geo. Y. Nickerson.

565. Harpoon-head of bone and iron with walrus-hide line. Eskimos. Port Foulke. Dr. I. I. Hayes.

2186. Seal-harpoon head of bone and iron. Eskimos. Anderson River. R. McFarlane.

13140. Walrus-harpoon head of bone and iron, hide line. Innuit Eskimos. Greenland. S. F. Baird.

19376. Bone harpoon-head with hide line. Eskimos. Alaska. Rev. James Curley.

11618. Seal-harpoon head of bone. Eskimos. Nunivak Islands, Alaska. W. H. Dall.

15631. Miniature model of seal-harpoon. Eskimos. Alaska. H. W. Elliott.

1678. Miniature model of seal-harpoon. Eskimos. Alaska. W. H. Dall.

16120–21–23–25, 5606–7621. Seal-harpoon heads of bone and iron. Eskimos. Nunivak Islands, Alaska. W. H. Dall.

15619. Harpoon-head of bone. Eskimos. Alaska. H. W. Elliott.

2674. Seal-harpoon heads of bone. Anderson River Eskimos. Fort Anderson. R. McFarlane.

2092, 2250, 2817, 3975, 5815, 7422, 7440. Seal-harpoon heads of bone and iron. Anderson River Eskimos. Mackenzie's River district. R. McFarlane.

——. Indian harpoons of shell and iron. Whaling-harpoon, used by Makah Indians of Vancouver's Island and vicinity.

4131. Four models of whaling-harpoons, lines and throuts. Makah Indians. Neah Bay, Wash. J. G. Swan.

1869. Head of whaling-harpoon, with line. Makah Indians. Cape Flattery, Wash. Geo. Suckley.

This harpoon-head is made from the shell of a large species of *Mytilus*, and illustrates the methods of manufacture employed by Indians of the Northwest coast previous to the introduction of metal by the white man.

20896–7. Head of whaling-harpoon and line. Makah Indians. Sitka, Alaska. J. G. Swan.

This harpoon-head is constructed of sheet-iron and shows the method now employed in the manufacture of the weapons. The rope and covers are made from the bark of *Thuja gigantea*.

828. Head of whaling-harpoon with line. Makah Indians. Neah Bay, Wash. Ter. J. G. Swan.

Spears with detachable heads.

Eskimo harpoons of stone, bone, and iron.

1868. Head of whaling-harpoon with line. Makah Indians. Neah Bay, Wash. Ter. J. G. Swan.
26875–26825. Handles of whaling-harpoons. Makah Indians. J. G. Swan.
2530. Harpoon-darts. Eskimos. Alaska. North Pacific Exploring Expedition. Capt. John Rodgers.
16675. Harpoon-dart. Kotzebue Sound. W. H. Dall.
5775–6–7–9–80. Harpoon-darts. Sitka, Alaska. W. H. Howard, U. S. R. M.

Harpoon-spears.

6564. Head of barbed fish-dart, made of native copper. Eskimos. Sitka, Alaska. Dr. T. T. Minor.
9083. Head of barbed fish-dart, made of native copper. Alaska. Lieut. F. W. Ring, U. S. N.
20653. Head of barbed fish-dart of native copper with line of twisted sinew. Alaska. Smithsonian Institution.
21413. Fish-spear with detachable barb. Hoochuon Indians. South Eel River, California. Stephen Powers.
Double-pronged spears with detachable heads. McCloud River Indians, Shasta Co., Cal. Livingston Stone. These spears are used in the capture of the *Salmo quinnat*. The handles are thirty feet in length. The barbs are made from the splint bones of deer. See No. 13743, below.
19046. Fish-spear with detachable barbs. Cooyunu Pi-Ute Indians. Pyramid Lake, Nevada. Stephen Powers.
23522. Two-pronged spear with detachable barbs. Indians of Northwest coast. J. G. Swan.
26826. Handle of spear similar to 23522, but longer. J. G. Swan.
23520. Spear with many-barbed detachable head and kelp line. Indians of Northwest coast. J. G. Swan.
13743. Points for salmon-spear made of the splint bones of the deer. McCloud River Indians. Shasta Co., Cal. Livingston Stone.
650. Harpoon-arrows with iron tips. Indians. Cape Flattery, Wash. Ter. Geo. Gibbs.
21308. Wooden barbs for fish-harpoon. Indians. Hoopah Valley, Cal. Stephen Powers.
2249. Head of fish-harpoon. Eskimos. Anderson River. R. McFarlane.
11356. Harpoon-dart with bladder-float. Nashegay Indians. Alaska. Dr. T. T. Minor.

9. Tongs, &c.

†*For hand-use.*

Tongs (with two handles).

Oyster-tongs and oyster-rakes.

26110. Oyster-tongs. S. Salisbury, Providence, R. I.
26109. Oyster-tongs. " "
25205. Oyster-tongs. Wilcox, Crittenden & Co., Middletown, Conn.
29111. Oyster-nippers. S. Salisbury, Providence, R. I.

"Nippers" (with cord and handle).

Snake-tongs.
Sponge-tongs.
Coral-tongs.

†† *For use with sounding-lines.*

"Clamms" for deep-sea soundings (forceps closed by a weight).[1]

(Ross' "deep-sea clamms.")
(Bull-dog sounding-machine.)

*** *Grasping-lines.*

10. NOOSES.

† *Stationary nooses.*

Jerk-snares.

Bird-snares.
Fish-snares of wire, gut, hair, &c.

†† *Thrown nooses.*

Lariats and lassos.

11344. Lariat of hide. Apache Indians. General M. C. Meigs, U. S. A.
8534. Lariat of hide. Sioux Indians. Nebraska. Dr. S. M. Horton, U. S. A.
1912. Lariat of hide. Sioux Indians. Upper Missouri River. Lieut. G. K. Warren.
6920. Lariat of hide. Comanche Indians. Fort Cobb, Ind. T. E. Palmer.
6921. Lariat of hide. Comanche Indians. Llano Estacado, Texas. E. Palmer.
5559. Lariat of hide. Apache Indians. E. Palmer.
7492. Lariat of moose-skin. Mackenzie River Indians. Fort Anderson. R. McFarlane.
11206. Lariat of rope. Pi-Ute Indians. Southern Utah. Maj. J. W. Powell.
5558. Lariat of buffalo-hair. Apache Indians. E. Palmer.
7317. Lariat of buffalo-hair. Apache Indians. Maj. W. H. Mills, U. S. A.
9034. Lariat of buffalo-hair. Nez Percé Indians. Idaho. Dr. E. Storror.
6922. Lariat of buffalo-hair. Comanche Indians. Fort Cobb, Ind. Ter. E. Palmer.

11. LOADED LINES. (Bolas.)

Bird-slings (used by Eskimos).

19507. Bird-sling. Greenland. J. H. Clark. Smithsonian Institution.
9831. Bird-sling. Greenland. S. F. Baird. " "
7444. Bird-sling. McKenzie's River. Fort Anderson, H. B. T. R. McFarlane.
9831. Bird-sling. Greenland. S. F. Baird.
7537. Bird-sling. Arctic coast. Fort Anderson, H. B. T. B. R. Ross.

[1] See exhibit of Navy Department.

*****Entangling-lines.*

12. TANGLES.

The tangles are employed by naturalists for the purpose of gathering small spiny animals, such as sea-urchins and star-fishes, from the bottom at considerable depths. They adhere to the fibers of the spun-yarn in great numbers. It has been thought that this instrument might advantageously be employed in freeing oyster-beds from their worst enemies, the star-fish.

Swab-tangles.

Swab-tangles.

26844. Swab-tangle. U. S. Fish Commission.

(Dredge-tangles, used by English collectors.)

Harrow-tangles.

Harrow-tangles.

26845. Models of harrow-tangles. U. S. Fish Commission. Formerly used by the Fish Commission, now replaced by the wheel-tangles.

Wheel-tangles.

Wheel-tangles.

26846. Model of wheel-tangle. U. S. Fish Commission.
26848. Wheel-tangles. U. S. Fish Commission.

III. MISSILES.

**Simple missiles (those propelled by the unaided arm).*

13. HURLED WEIGHTS.

Stones and disks (thrown by the hand).
Weights (dropped from an elevation, dead-falls, not automatic).

14. HURLED STICKS.

Straight sticks.

Clubs used as missiles.

Curved sticks.

Throw-sticks, used by the Moqui Indians of New Mexico in hunting rabbits.

9543–4. Throw-sticks. Used in rabbit-hunting by Moqui Indians. New Mexico. Dr. Edward Palmer.

15. HURLED SPEARS.

Darts and lances.

See under "Lances and spears," above enumerated, many of which may be used as missiles.

** *Centrifugal missiles. (Propelling power augmented by an artificial increase of the length of the arm.)*

16. SLINGS AND SPEARS THROWN BY STRAPS.

Slings.

9532. Sling. Navajo Indians. Smithsonian Institution.
17234. Sling. Indians. " "

Spears (with straps).

17. MISSILES PROPELLED BY "THROWING-STICKS."

Spears (with throwing-sticks, used by Eskimos).

See above under "Bird and fish spears," particularly No. 10267, a spear with throwing-stick attached.

7899. Throwing-stick. Eskimos. Aleutian Islands. Dr. T. T. Minor.
7933. Throwing-stick. Eskimos. Kodiak. "
16076. Throwing-stick. Eskimos. Unalashka. W. H. Dall.
2533. Throwing-stick. Eskimos. Alaska. North Pacific Exploring Expedition. Capt. John Rodgers.
11346–47. Throwing-sticks. Yukon River, Alaska. Vincent Colyer.
15643. 1642–16243. Throwing-sticks. Eskimos. Nunivak Islands. W. H. Dall.
2267. Throwing-stick. Eskimos. Smithsonian Institution.
5774. Throwing-stick. Eskimos. Sitka. W. A. Howard, U. S. R. M.
20771. Throwing-stick. Eskimos. Sitka. J. G. Swan.

*** *Missiles propelled by a spring.—(Spring consisting of bent rod.)*

18. BOWS AND ARROWS.

Bows.

Simple bows.
(Cross-bows.)
(Ballistas.)

These articles are arranged with the Ethnological series, as are also the arrows, with the exception of a few forms peculiarly adapted to hunting.

Arrows.

Hunting-arrows.

11350–54. Bird-arrows. Eskimos. Bristol Bay, Alaska. Vincent Colyer.
16410–11–12. Bird-arrows. Eskimos. Nunivak Islands, Alaska. W. H. Dall.

Arrows.

Hunting-arrows.

8827–28–29–30. Bird-arrows. Eskimos. Alaska? Smithsonian Institution.
5602. Bird-arrows. Yukon River, Alaska. W. H. Dall.
15654. Hunting-arrows. Kodiak Indians. Alaska. W. H. Dall.
16413–14–15. Hunting-arrows with heads of bone and iron. Eskimos. Nunivak Islands, Alaska. W. H. Dall.
——. Hunting-arrows with bone heads. Eskimos. Nunivak Islands, Alaska. Vincent Colyer.

Harpoon-arrows, used in fishing.

11348–52. Harpoon-arrows. Eskimos. Bristol Bay, Alaska. Vincent Colyer.
15677–15681–82. Harpoon-arrows. Eskimos. Nunivak Islands, Alaska. W. H. Dall.
19379. Harpoon-arrow. Eskimos. Alaska. Rev. J. Curley.
8005–6–9. Harpoon-arrows. Eskimos. Nushegay Indians. Dr. T. T. Minor.

Accessories of bows and arrows.

Holders.*
Quivers.*
Arrow-head pouches.*

Implements of manufacture.

Flint-chipping apparatus.*
Arrow-head sharpeners.*
Shaft-gauges.*
Cord-twisting apparatus.*
Shaft-polishers.*
Glue-sticks, used in fastening head of arrow.*

Arranged with the Ethnological series.

‡‡ *Spring consisting of elastic cord.*

19. India-rubber slings.

Pea-shooters (used in killing birds).

‡‡‡ *Spring consisting of metallic helix.*

20. Spring-guns.

Spring-guns.

**** *Missiles propelled by the compression of air or water.*

21. Air-guns.

Blow-guns (missile propelled by the breath).

Blow-guns carrying arrows.
Blow-guns carrying balls.

Piston air-guns.
Reservoir air-guns.

Air-guns.

29535. Bedford Eureka air-pistol, with darts, slugs, and gun-rest. (Patented Dec. 21, 1875.) Eureka Manufacturing Company, Boston, Mass.

Air-gun canes.

22. WATER-GUNS.

Syringe-guns.

Humming-bird guns.

**** *Fire-arms.*

23. GUNS AND PISTOLS.

Muzzle-loading arms.

26714. Flint-lock gun (single barrel) old fashion. Smithsonian Institution.
809. Single-barrel shot (?) gun.
Given by Lord Melville to Sir John Franklin, who used it on his unfortunate expeditions in 1820, 1821, and 1822, then given by Sir John to his interpreter, St. Germain, who sold it to Chief Factor Smith, of the Hudson Bay Co., who gave it to his son-in-law, Chief Factor McPherson, from whom it was obtained by B. R. Ross, of the Hudson Bay Co.

Breech-loading arms.

25894. Six-shooting shot-gun. Colt's Fire-Arms Manufacturing Company, Hartford, Conn.
25895. Double-barreled breech-loading fowling-piece. E. Remington & Sons, Ilion, N. Y.
25247. Double-barreled breech-loading fowling-piece. Damascus steel, 12 gauge. Parker Bros., Meriden, Conn.
25250. Single-barreled breech-loading shot-gun. (Patented May 26, 1874. Phœnix calibre 12.) Whitney Arms Company, Whitneyville, Conn.
26574. Breech-loading gun. Clark & Sneider, Baltimore, Md.
26573. Breech-loading gun. " "
29533. The Sneider patent double-barrel breech-loading shot-gun. Clark & Sneider, Baltimore, Md.
29534. The Sneider double-barrel breech-loading shot-gun; solid tip grip. (Patented Dec. 22, 1868; April 7, 1874.) Clark & Sneider, Baltimore, Md.
25896. Creedmoor rifle. E. Remington & Sons, Ilion, N. Y.
——. Mid-range rifle. Peabody & Martin pattern (44 cal., 100 grs.), made by Providence Tool Co. Schuyler, Waltham & Graham, New York.
25890. Sporting-rifle. King's improvement. (Patented March 29, 1856; October 16, 1860. Model, 1873. Calibre .44.) Winchester Repeating Arms, New Haven, Conn.
22202. Sharpe's rifle. (Patented April 1, 1866.) Manufacturers.
29289–311. Maynard's rifle with appurtenances. (Pistol grip, vernier rear-sight. Front wind-gauge sight and spirit-level; 32 inches, .4 calibre.) Massachusetts Arms Company, Chicopee Falls, Mass.

Breech-loading arms.

29299. Shot-barrel for Maynard's rifle; 32 inches, .64 calibre. Massachusetts Arms Company, Chicopee Falls, Mass.

25873. Six-shooting rifle; 44-inch calibre. Colt's Fire-Arms Manufacturing Company, Hartford, Conn.

25889. Carbine. King's improvement. (Patented March 29, 1866; October 16, 1860. Model 1873. Calibre .44.) Winchester Repeating Arms, New Haven, Conn.

25248. Breech-loading sporting-rifle. (Patented October 17, 1866. Reissued June 25, 1872; Dec. 26, 1865. Reissued Oct. 1, 1867; May 15, 1866; July 16, 1872.) Whitney Arms Company, Whitneyville, Conn.

25249. Breech-loading sporting-rifle. Phœnix calibre, 44. Whitney Arms Company, Whitneyville, Conn.

25892. Six-shooting revolver. 45 calibre. (Patented Sept. 19, 1871; July 2, 1872.) Colt's Fire-Arms Manufacturing Company, Hartford, Conn.

Whaling-guns.

24986. C. C. Brand's improved whaling-gun. Patented June 22, 1852. For use with C. C. Brand's improved bomb-lance. 24987. Powder-flask with charger. 24988. Wad-cutter. 24989. Wad-cutter (inside). 24992. Prepared wads. 24990, 24991. Screw-drivers. C. C. Brand, Norwich, Conn.

24993–97. C. C. Brand's improved bomb-lance. Patented June 22, 1859. For use with C. C. Brand's improved whaling-gun. 24997. Exploded lance. 24998. Lance-hook (for drawing charge). C. C. Brand, Norwich, Conn.

25251. E. Pierce's harpoon-gun. Patented 1865. U. S. Fish Commission.

26897. Cunningham & Hogan's breech-loading bomb-gun, with explosive lances. William Lewis, New Bedford, Mass.

24. (Accessory.) Ammunition and its preparation.

Explosives.

Gunpowder.
Gun-cotton.
Percussion powder:
- Caps.
- Needle percussion.
- Primers.

Wood powder.
Dynamite or giant-powder.
Nitroglycerine.
Dualine.
Lithofracteur.
Colonia powder.
Other explosives.

For obvious reasons this series could not be exhibited.

Missiles.

Bullets.

(Accessory.) Bullet-molds.

29300. Pair of molds for conical and cylindrical bullets. Massachusetts Arms Company, Chicopee Falls, Mass.

Shot.

——. Series of samples of shot, sizes from No. 000 to No. 12. Thomas Sparks, Philadelphia, Pa.

Explosive bullets, shells, &c.:
Bomb-lance.

Wadding.

Bulk wadding.
Prepared wads.
(Accessory.) Wad-cutters.

The articles of this class may be seen in connection with the ammunition series.

Ammunition-measures.

Measures.
Shot-measures.
Powder-measures. } Attached to pouches and separate.

16190. Powder-charger. Nunivak Islands, Alaska. W. H. Dall.
2689. Gun-charger. Indians of Northwest coast. Captain Wilkes, U. S. N. U. S. Exploring Expedition.

Weighing scales.

Prepared ammunition.

Ball, shot, and wire cartridges.

25891. Card of rim-fire cartridges. Winchester Repeating Arms, New Haven, Conn.
29304. Ten metallic cartridge-shells, .4, for rifle. Massachusetts Arms Company, Chicopee Falls, Mass.
29305. Ten metellic cartridge-shells, .64, for shot-guns. Massachusetts Arms Company, Chicopee Falls, Mass.

Methods of preparing cartridges.

Loaders, crimpers, and cappers.

29303. Metallic loader for rifle-cartridge. Massachusetts Arms Company, Chicopee Falls, Mass.

Methods of preparing cartridges.

Loaders, crimpers, and cappers.

29302. Rosewood loader for shot-cartridge. Massachusetts Arms Company, Chicopee Falls, Mass.
29308. Two rosewood loading-blocks. Massachusetts Arms Company, Chicopee Falls, Mass.
25897. Cartridge-loading machine. E. Remington & Sons, Ilion, N. Y.
29306. Cartridge-capper. Massachusetts Arms Company, Chicopee Falls, Mass.

25. ACCESSORIES OF LOADING, CLEANING, AND REPAIRING, SIGHTING, AND TESTING FIRE-ARMS.

Instruments for cleaning, loading, &c.

Rammers.
Swabs.
Charge-drawers—"worms"—and other loading tools.

These may be seen attached to the various wrappers.

29307. Wrench and cap-picker. Massachusetts Arms Company, Chicopee Falls, Mass.
29311. Rod and tip for cloth, plain. Massachusetts Arms Company, Chicopee Falls, Mass.
29310. Jointed rod and brush. Massachusetts Arms Company, Chicopee Falls, Mass.
29309. Screw-driver. Massachusetts Arms Company, Chicopee Falls, Mass.
7525. Gun-screw-driver. Apache Indians. Arizona. E. Palmer.
26695. Loading-tools. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26696. Closer. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
29251. Oil-bottle, nickel (No. 1). Edwin W. Judge, New Haven, Conn.
29252. Oil-bottle, nickel (No. 2). " "
26698. Oil-can. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

Sights, &c.

Muzzle-sights.
Slit-sights.
Globe-sights.
Peep-sights.
Breech-sights.
Plain-sights.
Graduating-sights.
Telescope-sights.
Levels, attached to guns.
Wind-gauges.

These may be seen attached to the guns.

Recoil-checks.

25700. William D. Miller's patent recoil-check for shot-guns and rifles. (Patented Nov. 2, 1875, No. 52.) A. J. Norman, New York.
Advantages claimed for this arrangement are that it repels and neutralizes the recoil, permits steadier aim, and insures increased range and greater penetration.

26. For carrying arms and ammunition.

Ammunition-holders.

Powder-horns:
Horns.
Flasks.
Canisters.

1910. Powder-horn. Sioux Indians. Upper Missouri River. Lieut. G. K. Warren, U. S. A.
1472. Powder-horn. Comanche Indians. General D. N. Couch, U. S. A.
16309. Powder-horn. Sitka, Alaska. W. H. Dall.
1909. Powder-horn and pouch. (Containing bullets, gun-flints, and arrow-points.) Sioux Indians. Upper Missouri River. Lieut. G. K. Warren, U. S. A.
5520. Powder-horn. Papago and Apache Indians. E. Palmer.
21672. Powder-horn and pouch. Yankton Sioux. Dakota. Army Medical Museum. Dr. J. T. Boughter.
26706. Cartridge-box. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26703. Cartridge-flask. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
7313. Powder-flask. Apache Indians. Major Mills, U. S. A.
13035. Powder-flask. Aleut Eskimos. Ounalashka. W. H. Dall.
16099. Powder-flask. Magemut Eskimos. Nunivak Islands, Alaska. W. H. Dall.
9290. Powder-flask. Alaska. Dr. A. H. Hoff, U. S. A.
5184. Powder-flask. Porterre Indians. Dr. J. T. Rothrock, U. S. A.
16292. Powder-flask. Kodiak Eskimos. Chirikoff. W. H. Dall.

Shot and bullet holders.

Pouches.

——. Shot-pouch. Found in old house, Saint Regis, N. Y. R. B. Hough.
20673. Shot-pouch. Indians of the Northwest coast. Fort Simpson, B. C. J. G. Swan.
9641. Bullet-pouch. Navajo Indians. E. Palmer.
11077. Bullet-pouch. Navajo Indians. Northwestern New Mexico. Vincent Colyer.
2112. Bullet-pouch. Indians of Upper Missouri. War Department, U. S. A.
6199. Bullet-pouch and belt. Delaware Indians. Arizona. E. Palmer.
2470. Bullet-pouch and belt. Indians of Missouri Valley. War Department, U. S. A.
5432. Bullet-pouch and belt. J. Varden.
26699. Ball-box. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
1935. Bullet-pouch and belt. Indian.

Shot and bullet holders.

Cap-holders.

5525. Cap-case. Apache Indians. Arizona. E. Palmer.
26697. Cap-box. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

Pouches.
Boxes.
Cap-straps, used by Indians.

Cartridge-holders:
Pouches.
Boxes.
Belts.
Vests.

Weapon-holders.

Slings for arms:
Shoulder-slings.
Saddle-slings.
Holsters.
Belts:
Pistol-belts.
Racks and cases:
Gun-racks.
Gun-cases.

8546. Gun-case. Indians. Ogalalla, Nebr. Dr. S. M. Horton, U. S. A.
14849. Gun-case. Indian. Colorado. Maj. J. W. Powell.
26705. Gun-case. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest and Stream Publishing Company.
26704. Gun-case. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest and Stream Publishing Company.

IV. BAITED HOOKS. ANGLING-TACKLE.

27. Hooks with movable lines.

Tackle for surface-fishing.

Fly-fishing tackle.
Salmon-tackle.
Trout-tackle.
Black-bass tackle.
Shad-tackle.

Tackle for surface-fishing.

Trolling-tackle:

Trolling-tackle.
Whiffing-tackle.
Drailing-tackle.
Gangs of hooks for minnow-bait.

The parts of these gears may be seen in their proper places, with hooks, lines, &c.

26683. Minnow-gang. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest and Stream Publishing Company.

Surf-tackle for throwing and hauling.

Striped-bass tackle.
Red-fish or bass tackle.
Blue-fish tackle.
Tide-drailing tackle.
Pasque and Cuttyhunk bass-tackle.

24808–9. Blue-fish line. Rigged with eel-skin squids. J. M. K. Southwick, Newport, R. I.
24802–7. Blue-fish lines. Rigged with cloth squid. Block Island. J. M. K. Southwick, Newport, R. I.

Tackle for fishing below the surface.

Short hand-gear.

25684. Mackerel-lines and cleats. Bradford & Anthony, Boston, Mass.
25940. Mackerel hook and line. A. McCurdy.
29293. "Otter," with line and flies attached. Used in lake and river fishing. William Morris, Lake City, Minn.
19047. Throw-line with minnow-hooks. Cooyuwee Pi-Utes. Pyramid Lake, Nevada. Stephen Powers.

Deep-sea gear.

25786. Hand-line gear for halibut and cod. Used in George's Banks fisheries. Alexander McCurdy, East Gloucester, Mass.
25687. Gear, used by American fishermen on George's Banks. Bradford & Anthony, Boston, Mass.
29471. Hand-line gear. Used in George's Banks cod and halibut fisheries. A. McCurdy, East Gloucester, Mass.
29483. Cod-fishing gear. Used from 1812–1830. Lemuel Cook, 2d, Provincetown, Mass.
25686. Cod hand-line and gear. Used chiefly on Western and Grand Banks of Newfoundland. Bradford & Anthony, Boston, Mass.
25685. Pollock line and gear. Bradford & Anthony, Boston, Mass.
24810–11. Rigged tautog-lines. J. M. K. Southwick, Newport, R. I.
25665. Lines. Rigged for pond-fishing. Wm. M. Young, Philadelphia, Pa.
1140. Halibut-hook, with kelp line. Makah Indians. Puget Sound, W. T. J. G. Swan.

Tackle for fishing below the surface.

Deep-sea gear:
Flounder-gear.
Shark-gear.
Other bottom-gear.
Bobs:
Eel-bobs.

28. HOOKS, WITH STATIONARY LINES.—SET TACKLE.

Surface lines.

Spilliards, or floating-trawl lines.

Bottom-set lines.

Trawl-lines, or bull-tows.

25688. Model of codfish-trawl, used by American fishermen on Western and Grand Banks of Newfoundland. Buoys, scale of one-sixth; anchors, scale of one-fifteenth. Bradford & Anthony, Boston, Mass.
29469. Section (one-fifth) of trawl-line. Used in George's Banks codfisheries. A. R. Crittenden, Middletown, Conn.
6560. Trawl-line and hooks. Indians of Vancouver's Island. Dr. T. T. Minor.
32705. One section or "skate" of a halibut trawl-line with (No. 32706) inner buoy with flag, (No. 32707) outer buoy with "black-ball," (No. 32708) buoy-line, and (No. 32709) anchor. Capt. Jos. W. Collins and Philip Merchant, Gloucester, Mass.

Set-traps.

25562. Pickerel-traps. With lines and flags for fishing through the ice. Bradford & Anthony, Boston, Mass.
25563. Set of implements for smelt-fishing through the ice.
25667. Fishing-bows. W. M. Young, Philadelphia, Pa.

29. (ACCESSORY.) PARTS AND ACCESSORIES OF ANGLING-APPARATUS AND OF HARPOON AND SEINE LINES.

Hooks (including a full series of unmounted hooks, of recent and aboriginal manufacture).

Plain hooks.

25682. The ten processes through which American hand-made fish-hooks pass from the wire to the finished hook. Made entirely by hand-labor in the factory of J. W. Court, Brooklyn, N. Y. Bradford & Anthony, Boston, Mass.
25524. Double-refined, cast-steel, tapered point; Virginia hooks, flatted, Nos. 10 to 1 and 1–0 to 3–0. American Needle and Fish-Hook Company, New Haven, Conn.
25535. Superfine cast-steel blackfish-hooks, japanned, flatted, Nos. 1 to 8. American Needle and Fish-Hook Company, New Haven, Conn.

Hooks (including a full series of unmounted hooks, of recent and aboriginal manufacture).

Plain hooks.

25536. Eel-hooks, No. 6. American Needle and Fish-Hook Company, New Haven, Conn.

25640. Halibut-hooks, ringed; Nos. 1 to 3. American Needle and Fish-Hook Company, New Haven, Conn.

25528. Cast-steel Kirby sea fish-hooks, flatted; Nos. 1 to 12. American Needle and Fish-Hook Company, New Haven, Conn.

25530. Cast-steel Kirby sea fish-hooks, ringed; Nos. 1 to 12.

25529. Superior cast-steel Kirby sea fish-hooks, galvanized, flatted; Nos. 1 to 8. American Needle and Fish-Hook Company, New Haven, Conn.

25522. Double-refined cast-steel Kirby river and trout fish-hooks, ringed; Nos. 1 to 12 and 1–00 to 10–0. American Needle and Fish-Hook Company, New Haven, Conn.

25523. Kirby river and trout fish-hooks, flatted, extra superfine; Nos. 1 to 12 and 1–0 to 10–0. American Needle and Fish-Hook Company, New Haven, Conn.

25519. Superfine spring steel Kirby salmon, flatted; Nos. 12 to 3–0. American Needle and Fish-Hook Company, New Haven, Conn.

25520. Carlisle trout-hooks, flatted; Nos. 12–20. American Needle and Fish-Hook Company, New Haven, Conn.

25521. Carlisle trout-hooks, ringed; Nos. 8 to 3–0. American Needle and Fish-Hook Company, New Haven, Conn.

25516. Superfine cast-steel Limerick salmon, flatted; Nos. 1–0 to 12 and 2–0 to 10–0. American Needle and Fish-Hook Company, New Haven, Conn.

25517. Superfine cast-steel Limerick salmon, ringed; Nos. 1–0 to 9 and 2–0 to 10–0. American Needle and Fish-Hook Company, New Haven, Conn.

25514. Double-refined cast-steel Limerick river and trout fish-hooks (spear-points, flatted); Nos. 1–0 to 12 and 2–0 to 10–0. American Needle and Fish-Hook Company, New Haven, Conn.

25515. Double-refined cast-steel Limerick river and trout fish-hooks (spear-head points, flatted, shanks ringed); Nos. 1–0 to 12 and 2–0 to 10–0. American Needle and Fish-Hook Company, New Haven, Conn.

25518. Extra spring-steel Aberdeen trout-hooks, flatted; Nos. 8 to 4–0. American Needle and Fish-Hook Company, New Haven, Conn.

25525. Superfine spring-steel Kinsey trout-hooks, flatted; Nos. 6 to 16. American Needle and Fish-Hook Company, New Haven, Conn.

25591. Superfine steel Kinsey trout-hooks, ringed; Nos. 10 to 16. American Needle and Fish-Hook Company, New Haven, Conn.

25534. Cast-steel drop-point mackerel-hooks, large and small wire, flatted; Nos. 1 A to 5 A, and 2 B to 4 B. American Needle and Fish-Hook Company, New Haven, Conn.

25527. Superfine cast-steel J. P. cod-hooks, ringed; Nos. 1 to 8. American Needle and Fish-Hook Company, New Haven, Conn.

25526. Superfine cast-steel J. P. cod-hooks, flatted; Nos. 1 to 8. American Needle and Fish-Hook Company, New Haven, Conn.

25532. Central-draught codfish-hooks, eyed; Nos. 10 to 17. American Needle and Fish-Hook Company, New Haven, Conn.

25533. Double-refined cast-steel, original, central-draught cod or mackerel hooks, ringed; Nos. 12 to 20. American Needle and Fish-Hook Company, New Haven, Conn.

Hooks (including a full series of unmounted hooks, of recent and aboriginal manufacture).

Plain hooks.

25531. Double-refined cast-steel, original, central-draught cod or mackerel hooks, flatted. American Needle and Fish-Hook Company, New Haven, Conn.

25601. Cod-hooks. Used when fish rise to the surface. J. M. K. Southwick, Newport, R. I.

25538. Shark-hooks. Bradford & Anthony, Boston, Mass.

29465. Shark-hooks. M. W. Grant, Wellfleet, Mass.

25648. Shark-hook. (Extraordinary.) A. R. Crittenden, Middletown, Conn.

29464. Ground-shark hook. Style used forty years ago. Elisha Cook, Provincetown, Mass.

25602. Dog-fish hook with chain. Used at Newport, R. I. J. M. K. Southwick, Newport, R. I.

25641. Dog-fish hooks, ringed. American Needle and Fish-Hook Company, New Haven, Conn.

29467. Horse-mackerel hook. John Thomas, Belfast, Me.

29505. Hooks, probably lost by a French fishing-vessel. Found on St. George's Banks on a piece of trawl; fished up by Geo. H. Lewis, Provincetown, Mass.

32732. French cod-hooks; taken from codfish on Jeffries Ledge. Capt. James Tarr, Gloucester, Mass.

32731. French cod-hook; taken from codfish in Salvages' Shoals, Cape Ann, in 1856. Capt. James Tarr, Gloucester, Mass.

20654. Wooden fish-hooks. Indians of Northwest coast. Bella Bella, B. C. J. G. Swan.

——. Fish-hooks. Indians of Northwest coast of America. Straits of Fuca, Puget Sound. U. S. Exploring Expedition.

1051. Fish-hooks. Puget Sound. George Gibbs.

9765. Fish-hook. Wallapai Indians. E. Palmer.

5583. Fish-hook of wood and bone. Gens des Fous Indians. Yukon River, Alaska. W. H. Dall.

9807. Fish-hook and line. Chilkaht Indians. Alaska. Lieut. F. W. Ring, U. S. A.

5590. Fish-hooks and sinkers. Premorska Indians. St. Michael's, Alaska. W. H. Dall.

19064. Fish-hooks. Cooyuwee Pi-Ute Indians. Pyramid Lake, Nev. Stephen Powers.

20651. Fish-hook. Bella Bella, B. C. J. G. Swan. Indian make.

9270. Halibut-hook. Alaska. Dr. Hoff, U. S. A. " "

——. Halibut-hook. Sitka, Alaska. J. G. Swan. " "

9103–4. Halibut-hooks. Alaska. Lieut. F. W. Ring, U. S. A. " "

1141. Butt-end of hemlock limb for making halibut-hook. Makah Indians. Puget Sound, W. T. J. G Swan.

16346. Halibut-hooks. Yakutat Eskimo. W. H. Dall.

2630. Fish-hook. Northwest coast of America. Capt. Chas. Wilkes, U. S. N. U. S. Exploring Expedition.

1324. Hooks and lines. Eskimo. Anderson River. C. P. Gaudet.

1989. Fish-hook. Arctic America. B. R. Ross.

5118. Fish-hook. Anderson River Eskimos. Mackenzie's River district. R. Kennicott.

5116. Fish-hook. Fort Anderson Eskimos. Mackenzie's River district. R. MacFarlane.

26822. Fish-line of kelp (*Nereocystis*), fish-hook, and bladder buoy. Makah Indians. Neah Bay. J. G. Swan.

Hooks (including a full series of unmounted hooks, of recent and aboriginal manufacture).

Plain hooks.

9807. Fishing line and hook. Chilkaht Indians. Alaska. Lieut. F. W. Ring, U. S. A.
15630. Bone fish-hook with whalebone snood. Alaska. H. W. Elliott.
16315. Fish-hook. Sitka. W. H. Dall.
652. Halibut-hooks. Indians of Northwest coast of America. George Gibbs.
20656. Halibut-hooks. Indians of Fort Simpson, B. C. J. G. Swan.
15635. Fish-hooks. Eskimos. Poonook, Alaska. H. W. Elliott.
10142. Fish-hooks. Eskimos. Victoria Harbor. Capt. C. F. Hall.
14280. Fish-hooks. Neah Bay, W. T. James G. Swan.
16116. Bone hook. Magemut Eskimos. Nunivak, Alaska. W. H. Dall.
16311. Fish-hooks. Nunivak Islands, Alaska. W. H. Dall.
1051. Fish-hooks. Capt. Chas. Wilkes, U. S. N. U. S. Exploring Expedition.
10219. Codfish-hook. Eskimos. Coast of Greenland. Capt. C. F. Hall.
2191–92. Fish-hooks of stone, bone, and iron. Fort Anderson Eskimos. Mackenzie's River district. R. Kennicott.
2093, 2248. Fish-hooks of bone and iron. Anderson River Eskimos. R. MacFarlane.
16311–12. Bone hooks and line spreaders. Thlinket Eskimos. Sitka, Alaska. W. H. Dall.
5118–7441. Hooks of bone and iron. Mackenzie's River Eskimos. R. MacFarlane.
32660. Smelt-spreader and hooks. Gloucester, Mass. G. Brown Goode.

Jigs and drails.

29448. Bass and bluefish drail. Elisha Cook, Provincetown, Mass.
29425. Bluefish-drail. Provincetown style. Lemuel Cook, 2d, Provincetown, Mass.
25555. Bluefish-drails. Bradford & Anthony, Boston, Mass.
29485. Bluefish-drail. Used in Wellfleet, Mass., about 1830. Newell B. Rich, Wellfleet, Mass.
25555. Bluefish-drails. Bradford & Anthony, Boston, Mass.
——. Bluefish-hooks. Collected by A. R. Crittenden, Middletown, Conn.
25550. Bluefish-drail. Bradford & Anthony, Boston, Mass.
25771. Bluefish-drails. (Made in the form of a squid and very killing.) Peculiar to Provincetown, Mass. Coleman Cook, Provincetown, Mass.
25553. Bluefish-drail. Wm. H. Young, Brooklyn, N. Y.
25669. Bluefish-drail. Peculiar to Hyannis, Mass. Freeman Hallett, Hyannis, Mass.
25671. Bluefish-drail. Peculiar to Chatham, Mass. Sanford Freeman, Norwichport, Mass.
25671 (?) Bluefish-drail. J. H. Bartlett & Sons, New Bedford, Mass.
25537. Series of hollow bone bluefish-squids. Nos. 1 to 3. American Needle and Fish-Hook Company, New Haven, Conn.
25668. Bluefish-drail. Peculiar to Harwichport, Mass. Sanford Freeman, Norwich, Mass.
25708. Bluefish-drail. Central Wharf Company, Provincetown, Mass.
25598. Bluefish-drail. J. M. K. Southwick, Newport, R. I.
25670. Bluefish-drail. Made at sea from jaw-bone of sperm-whale (*Physeter macrocephalus*). J. H. Bartlett & Son, New Bedford, Mass.

Hooks (including a full series of unmounted hooks, of recent and aboriginal manufacture).

Jigs and drails.

25669. Bluefish-drail. Peculiar to Hyannis, Mass. Freeman Hallett, Hyannis, Mass. When used, covered with an eel-skin.

25600. Weak-fish jigs. Used in Newport, R. I. J. M. K. Southwick, Newport, R. I.

9078. Metallic squid. Indians. Alaska. Lieut. F. W. Ring, U. S. A.

32657. Cahoon's improved trolling-hooks. (Patented March 24, 1874.) Thomas J. Gifford & Co., New Bedford, Mass.

12496. Mackerel-jigs. Cape Ann. J. P. Nason, Rockport, Mass.

32658. Mackerel-jig. Gloucester, Mass. G. Brown Goode.

29479. Mackerel-jig. John B. Parsons, Rockport, Mass.

32734. Mackerel-jigs. Used thirty years ago. A. McCurdy, Gloucester, Mass.

25599. Mackerel-jigs. J. M. K. Southwick, Newport, R. I.

25941. Mackerel-jigs. Used about the year 1840. Capt. Edward L. Rowe, Gloucester, Mass.

12495. Soapstone "jig" molds, No. 1. (Patented March 15, 1870.) Cape Ann. J. P. Nason, Rockport, Mass.

25780. Soapstone mackerel-jig mold. Capt. E. L. Rowe, Gloucester, Mass.

25781–2. Wooden, lead-lined, mackerel-jig molds. "

25721. Mackerel-jig mold. (Patented March 15, 1870; J. P. Nason, No. 2.) Central Wharf Company, Provincetown, Mass.

32656. Mackerel-jig mold. Gloucester, Mass. G. Brown Goode.

32654. Mackerel-jig ladle. " "

32661. Mackerel-jig rasp. " "

32662. Mackerel-jig file. " "

32663. Pewter for use in manufacture of jigs. Gloucester, Mass. G. Brown Goode.

29461. Codfish "trip" and "fly-jig." Styles used fifty years ago. Lemuel Cook, 2d, Provincetown, Mass.

25601. Codfish jig-hook. Used when the fish rise from the bottom. Massachusetts. A. R. Crittenden, Middletown, Conn.

Spoon-baits, plain and fluted.

25550. Fluted spoons for pickerel, bass, and trout. Manufactured by G. M. Skinner, Gananoque, Ontario. Patented United States and Canada, 1874. Bradford & Anthony, Boston, Mass.

25550. Trolling-spoons. For bass and pickerel. Bradford & Anthony, Boston, Mass.

25555. Bluefish-spoons. Bradford & Anthony, Boston, Mass.

25550. Spinners. For pickerel, trout, and bass fishing. Bradford & Anthony, Boston, Mass.

25549. Spoon-baits. For bass, pickerel, pike, and trout fishing (nickel-plated). John H. Mann, Syracuse, N. Y.

25551. Spoon-baits. For bass, pike, pickerel, and trout (silver-plated). J. T. Buel, Whitehall, N. Y.

25552. Spoon-baits. For pike, pickerel, bass, trout, and bluefish. Wm. H. James, Brooklyn, N. Y.

25553. Spoon-baits. For pike, bass, pickerel, and trout fishing. Wm. H. James, Brooklyn, N. Y.

26793. Series of fluted trolling-spoons. D. M. Skinner, Gananoque, Ontario, Canada.

26685. Spoon-hooks. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

Hooks (including a full series of unmounted hooks, of recent and aboriginal manufacture).

Spoon-baits, plain and fluted.

26690. Trout-spoon. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest and Stream Publishing Company.

25554. Spoon-baits. For pike, pickerel, bass, and trout. W. D. Chapman & Son, Theresa, N. Y.

25666. Pearl minnows. W. M. Young, Philadelphia, Pa.

25550. MacHarg's pearl spoons. For pickerel, trout, and bass. Bradford & Anthony, Boston, Mass.

Artificial flies on hooks.

32735. Bass-flies. Sara J. McBride, Mumford, N. Y.

32736. Trout-flies. " "

26105. Salmon-flies. " "

32737. Artificial flies for salmon, trout, and bass. Bradford & Anthony, Boston, Mass.

NOTE.—For convenience this entire collection is provisionally entered under a single catalogue number.

a. Peacock, with water-color sketch of original.

b. March Brown, with water-color sketch of original.

Body—Fur of the fox-squirrel's face ribbed over with olive silk. Tail—Two strands of brown feather of the wild mallard. Wings—From the side feather of the shoveller duck approaching the tail; the light yeast-colored feather is the best, and if nicely tied must be an excellent fly. Legs—A grizzled cock's hackle, wound twice or thrice at the shoulder. For Pennsylvania, hooks Nos. 6 to 8; for New York, hooks Nos. 5 and 6; New England, hooks Nos. 4 and 5.

c. Great Red Spinner, with water-color sketch of original.

d. Water-cricket, with water-color sketch of original.

e. Great Dark Drone, with water-color sketch of original.

f. Cow-dung.

Body—Yellow mohair mixed with a little dingy brown fur from the bear. Wings—From the quill-feather of the curlew or whimbrel. Legs—Of a ginger-colored cock's hackle. For Pennsylvania, hooks Nos. 8 to 10; for New York, hook No. 8; for New England, hook No. 6.

g. Red Fly, with water-color sketch of original.

Body—The red part of squirrel's fur mixed with an equal quantity of claret mohair. Wings—The softest quill-feather of the pea-hen's wing. Legs—Claret-colored hackle; clip some of the upper fibers off that the wings may lie flat. For Pennsylvania, hook No. 6; for New York, hook No. 4; for New England, hook No. 3.

h. Blue Dun, with water-color sketch of original.

Body—Fur of a gray squirrel spun very thinly on fine yellow silk. Tail—Two fibers of a dun hackle. Wings—From a quill-feather of the blue-jay. Legs—Two or three turns of a ginger-dun hackle at the shoulder helps to keep the wings upright. For Pennsylvania, hook No. 6; for New York, hook No. 5; for New England, hook No. 4.

Hooks (including a full series of unmounted hooks, of recent and aboriginal manufacture).

32737. Artificial flies for salmon, trout, and bass—Continued.

i. Red Spinner, with water-color sketch of original.

Body—Bright brown silk ribbed, with fine gold twist. Tail—Two fibers of red cock's hackle. Wings—Upright from a mottled gray feather of the mallard stained a pale blue, the brighter in color the better. Legs—Plain red cock's hackle. For Pennsylvania, hook No. 6; for New York, hook No. 5; for New England, hook No. 4.

j. Nicholson.
k. Black Dog.
l. Atkinson.
m. Policeman.
n. Claret Wasp.
o. Blue Wasp.
p. Wren-tail, with water-color sketch of original.

Body—Ginger-colored fur ribbed with gold twist. Wings—Feathers from a wren's tail; if these cannot be procured a small scapular feather of the woodcock makes a good imitation, and may be hackled with the same kind of feather. For Pennsylvania, hook No. 10; for New York, hook No. 8; for New England, hook No. 6.

q. Red Ant, with water-color sketch of original.

Body—Peacock's herl tied with red-brown silk. Wings—From the quill-feather of the blue-jay. Legs—A small red cock's hackle.

r. Silver Horns, with water-color sketch of original.
s. Golden-dun Midge, with water-color sketch of original.
t. Sand-fly, with water-color sketch of original.

Body—Of the sandy-colored fur from the rabbit's neck or from the fox-squirrel spun on silk of the same color. Wings—From the whimbrel wing made full. Legs—From a light-ginger feather from the neck of a hen. For Pennsylvania, hooks Nos. 6 to 8; for New York, hooks Nos. 5 and 6; for New England, hooks Nos. 4 and 5.

u. Stone-fly, with water-color sketch of original.

Body—Fur of the gray squirrel, when it is shortest is best, mixed with a little yellow mohair, leaving yellow about the tail. Tail—A strand or two of brown mottled feathers, say of mallard. Wings—From the soft inside feather of the pea-hen's wing. Legs—Blue-dun cock's hackle. For Pennsylvania, hooks Nos. 6 to 8; for New York, hooks Nos. 5 and 6; for New England, hooks Nos. 4 and 5.

v. Gravel-bed, with water-color sketch of original.

Body—Dark dun or lead-colored silk floss dressed very fine. Wings—From a covert-feather of the woodcock's wing. Legs—A black cock's hackle, rather long, wound twice only round the body. For Pennsylvania, hooks Nos. 8 to 10; for New York, hooks Nos. 6 to 8; for New England, hooks Nos. 5 and 6.

Hooks (including a full series of unmounted hooks, of recent and aboriginal manufacture).

32737. Artificial flies for salmon, trout, and bass—Continued.

w. Grannum, with water-color sketch of original.

Body—Fur of a rabbit's face with a little fine green mohair worked in at the tail. Wings—From the inside wing-feather of a grouse. Legs—A pale ginger hen's hackle. For Pennsylvania, hooks Nos. 8 to 10; for New York, hooks Nos. 6 to 8; for New England, hooks Nos. 5 and 6.

x. Yellow Dun, with water-color sketch of original.

Body—Yellow mohair mixed with a little pale blue from a mouse or yellow floss silk with the least blue rabbit fur spun upon it. Wings—Upright, from the inside wing-feather of a mallard or summer duck. For Pennsylvania, hook No. 10; for New York, hook No. 8; for New England, hooks Nos. 5 and 6.

y. Iron-blue Dun, with water-color sketch of original.

z. Hawthorn, with water-color sketch of original.

Body—Black ostrich's herl. Wings—From the quill-feather of the English snipe. Legs—A black cock's hackle. For Pennsylvania, hooks Nos. 8 to 10; for New York, hooks Nos. 6 to 8; for New England, hooks Nos. 5 and 6.

aa. Jenny Spinner, with water-color sketch of original.

ab. Dennison.

Body—Green floss silk ribbed with silver twist. Tail—Orange-tipped fibres of tippet, wood-duck, ibis, and green parrot. Legs—A golden yellow hackle. Wings—Of the following kinds: wood-duck, tippet, brown mallard, bustard, green parrot, blue and yellow macaw, with a few strands of red macaw; black ostrich head. Hooks Nos. 1, 2, and 3.

ac. Deacon.

Body—Bright yellow seal's fur ribbed with silver tinsel backed with gold twist. Tail—Sprigs of gray mallard and ibis. Legs—Bright yellow hackle. Wings—Strips of gray mallard dressed full; black ostrich head. Hooks Nos. 2 and 3.

ad. Montreal.

Body—Claret mohair ribbed with gold tinsel. Tail—Three of four fibres of scarlet ibis. Legs—Claret hackle. Wings—Brown turkey. Hooks Nos. 1, 2, and 3.

ae. Rangely.

Body—Dark claret mohair ribbed with gold tinsel. Tail—Fibres of wood-duck and ibis. Legs—Dark claret hackle. Wing—Strips of wood-duck mixed with sprigs of scarlet ibis. Hooks Nos. 1, 2, and 3.

af. Tinselled Ibis.

Body—Silver tinsel ribbed with gold twist. Tail—A slip of wood-duck mixed with ibis. Legs—A covert wing-feather of the ibis. Wings—Strips from the large covert-feather of the ibis (the wing may be varied, adding a slip of wood-duck on each side); black ostrich head. Hooks Nos. 1, 2, and 3.

Hooks (including a full series of unmounted hooks, of recent and aboriginal manufacture).

32737. Artificial flies for salmon, trout, and bass—Continued.

ag. Lake George.

Body—Gold twist ribbed with silver twist. Tail—A small China topping. Legs—A bright orange hackle with a shoulder of bright claret. Wings—Two tippet feathers mixed with argus pheasant, brown mallard; black ostrich head. Hooks Nos. 1, 2, and 3.

ah. Chateaugay.

Body—Lemon-yellow floss ribbed with gold twist. Tail—A few fibres of brown mallard. Legs—A ginger-colored cock's hackle. Wings—Strips of shoveller duck mixed with fibres of argus pheasant.

ai. Yellow Drake.

Body—Yellow mohair ribbed with silver twist. Tail—Three fibres of yellow macaw. Legs—Yellow hackle with two turns of ibis on shoulder. Wings—Strips of gray mallard; black ostrich head. Hook No. 3.

aj. Richardson.

Body—A light-blue floss silk ribbed with silver twist. Tail—Three strands of brown mallard. Legs—Black cock's hackle. Wings—Strips of English blue-jay mixed with brown mallard. Hooks Nos. 3 and 4.

ak. Anthony.
al. Snow-fly.
am. Captain.
an. Combination.

Body—First half, yellow seal's fur; second half, red-claret seal ribbed with silver tinsel (the fur to be picked out). Tail—A few fibres of gray mallard mixed with ibis. Legs—A natural red hackle dipped in yellow dye. Wings—A piece of the same kind of hackle with pale ibis strips. On each side a piece of gray mallard sufficiently large to make the wing full; black ostrich head. Hooks Nos. 1, 2, and 3.

ao. Silver Doctor.

Body—Silver tinsel ribbed with gold twist. Tail—China pheasant topping. Legs—A pale-blue hackle with a small teal or guinea-hen at the shoulder. Wings—Mixed fibres of wood-duck, brown mallard, guinea-hen, green parrot, blue macaw, teal, and bustard; black ostrich head. Hooks Nos. 2 and 3.

ap. Prouty.

Body—First joint, silver twist; second, black ostrich with three turns of the twist over it. Tail—Orange floss with a turn or two of twist, a topping mixed with fibres of English blue-jay. Legs—A yellow dyed list hackle wound over the ostrich. Wings—Strips of white swan dyed yellow. One each side a rib of teal-feather, red macaw feelers; black ostrich head. Hooks Nos. 2 and 3.

aq. Black Cricket.
ar. Grasshopper.

Hooks (including a full series of unmounted hooks, of recent and aboriginal manufacture).

32737. Artificial flies for salmon, trout, and bass—Continued.

as. Great Blow.
at. Cadis.
au. Murray.

Black silk floss ribbed with silver twist. Tail—A small feather from the neck of the scarlet ibis. Legs—A golden yellow hackle. Wings—Dark mottled turkey; black ostrich head. Hooks Nos. 1 and 2.

av. Round Lake.
aw. Nameless.

Body—Brown ostrich herl, ribbed with gold twist, tag orange floss. Tail—Two or three short sprigs of yellow macaw. Legs—A small sooty orange hackle, wound from tag to shoulder. Wings—Alternate strips of brown peacock-wing feather and shoveller duck, with a sprig or two of wood-duck; peacock herl head. Hooks Nos. 1, 2, and 3.

ax. Racquette.

Is made in two joints of black orange mohair with gold tinsel. Legs—A dyed black hackle wound from tail to head. Tail—Bright yellow toucan. Wings—A mixture of gold pheasant tail, argus, and teal. Hooks Nos. 1, 2, and 3.

ay. Priest.
az. Francis Sykes.
ba. Duke.
bb. Dhoon.
bc. Dustin.
bd. Lascelles.
be. Snitching Sandy.
bf. Prouty.
bg. Grace.
bh. Powells.
bi. Hawthorne.
bj. Edmonson.
bk. Whitcher.
bl. Carshalton.
bm. Professor.

Body—Yellow mohair or silk floss ribbed with silver twist or tinsel. Tail—Two or three strands of scarlet ibis-wing feathers. Wings—From the gray.

bn. Coughton.
bo. Alder.
bp. Chauntry.
bq. Kingdom.
br. Hoflan Fancy.
bs. Coachman.

Body—Peacock's herl. Wings—From a white hen's wing-feather, or a pigeon-wing feather will answer the purpose. Legs—A red cock's hackle wound twice or thrice at the shoulder. For Pennsylvania, hooks Nos. 8 to 10; for New York, hooks Nos. 5 and 6; for New England, hooks Nos. 4 and 5.

Hooks (including a full series of unmounted hooks, of recent and aboriginal manufacture).

32737. Artificial flies for salmon, trout, and bass—Continued.

bt. Willow.
bu. Prouty.
bv. Notion.

Body—First half gold twist, remainder brown mohair, with three turns of the twist over it. Tail—A topping mixed with blue kingfisher. Legs—Brown hackle. Wings—Two tippet feathers mixed with argus pheasant, brown mallard, teal, China pheasant-tail feathers, blue and yellow macaw, with a blue kingfisher on each side of the wing; black ostrich head. Hooks Nos. 2 and 3.

bw. Louise.

Body—Brown mohair ribbed with gold twist. Tail—China feather topping. Legs—Reddish brown hackle, blue-jay on shoulder. Wings—Pheasant tippet feather and tail mixed with sprigs of green parrot, blue macaw, and kingfisher. Head—Orange mohair. Hooks Nos. 1 and 2.

bx. Round Lake.

Body—Orange and red claret merging into each other, silver tinselled. Tail—Sprigs of gold pheasant tippet, blue macaw, and green parrakeet. Legs—A claret hackle with a turn or two of orange on the shoulder. Wings—Two strips of brown turkey, with a small jungle-cock's feather on each side. Hooks Nos. 1, 2, and 3.

by. Nicholson.
bz. Our Pattern.
ca. Saranac.

Body—Claret floss silk ribbed with gold tinsel, backed with silver twist. Tail—China pheasant crest-feather. Legs—A claret hackle. Wings—Two China pheasant tippet feathers on either side, a strip or two of brown mallard and argus pheasant; black ostrich head. Hooks Nos. 1–0, 2, and 3.

cb. Long Tom of Long Lake.

Body—Gray squirrel mixed with a little green mohair ribbed with silver tinsel. Tail—China pheasant crest-feather. Legs—A blue dun cock's hackle; at shoulder two or three turns of bright claret hackle. Wings—Strips of brown mallard mixed with strands of summer duck, peacock-wing, and upper coverts of the wild turkey, red macaw feelers; black plush head. Hooks Nos. 1, 2, and 3.

cc. St. Regis.

Body—Cinnamon mohair ribbed with double gold twist. Tail—A strip of China pheasant tippet mixed with a few strands of bustard. Legs—A chestnut hackle with three turns or so of orange-dyed guinea-hen, small and short in the fibres. Wings—Strips of brown mallard, brown turkey, English pheasant tail, and China tippet; black ostrich head. Hooks Nos. 1 and 2.

Hooks (including a full series of unmounted hooks, of recent and aboriginal manufacture).

32737. Artificial flies for salmon, trout, and bass—Continued.

cd. No. 8.

Body—Three or four turns of mohair, rest of black mohair ribbed with silver tinsel and backed with gold twist. Tail—A small topping. Legs—A dyed black hackle and a shoulder of red claret. Wings—Mixed fibres of mallard, guinea-hen tail-feather over wing, two strips of dark turkey tipped with white. Hooks Nos. 2 and 3.

cc. Highlander.

cf. Lady of Mertoun.

Body—Water-rats fur ribbed with silver twist. Tail—A tip of common ostrich or mohair and a gold pheasant topping. Legs—Two or three turns of a small red hackle finished off with a black hackle. Wings—Strips of dark gray mallard. Head—Crimson ostrich or mohair. Hooks Nos. 1-0, 1, and 2.

cg. Toppy.

Body—Black mohair ribbed with silver tinsel. Tail—A topping tip crimson. Legs—A turn or two of red hackle, the rest black hackle. Wings—Black or brown turkey tipped with white. Head—Crimson. Hooks Nos. 1-0, 1, and 2.

ch. Sapper.

Body—Orange mohair ribbed with gold tinsel. Tail—Fibres of green parrot, guinea-hen, tippet feather, and ibis. Legs—Orange hackle, shoulder a dyed black hackle. Wings—Strips of peacock-wing feather, brown mallard, green parrot, guinea-hen, gold pheasant tail, blue macaw feelers; black ostrich head. Hooks Nos. 1-0 and 1.

ci. Stephens.

Body—Brick-colored, silk ribbed with gold twist and blue tip. Tail—Gold pheasant topping. Legs—Hackle, same color as body. Wings—Gold pheasant tippet and slight mixture of mallard; black ostrich head. Hooks No. 1.

cj. Jock Scott.

Body—In two joints, gold-colored floss the lowest, and black floss the upper; from the joint are tied two short toucan points, and over the butts of them at the joints two turns of black ostrich. Tail—One gold pheasant topping and one Indian crow feather. Legs—Black hackle over the black joint and speckled guinea-hen at the shoulder. Wings—A white tip turkey, slip in the middle fibres of bustard, teal, brown mallard, yellow, red, and green parrot, one topping over all; blue macaw feelers. A kingfisher on either cheek; black ostrich head. Hooks Nos. 1-0, 1, and 2.

ck. Whitcher.

Body—Black mohair ribbed with silver, tip yellow silk. Tail—Gold pheasant topping. Legs—Black hackle. Wings—A mixture of mallard and hooded merganser; black ostrich head. Hooks Nos. 1 and 2.

Hooks (including a full series of unmounted hooks, of recent and aboriginal manufacture).

32737. Artificial flies for salmon, trout, and bass—Continued.

cl. Nicholson.

Body—Blood-red mohair ribbed with gold tinsel. Tail—Sprigs of mallard and pheasant tippet feather. Legs—A blood-red and a dark-blue hackle wound on together. Wings—Brown mallard and blue macaw feelers; black ostrich head. Hooks Nos. 1 and 2.

cm. Caribou.

Body—Tip gold tinsel, tag golden-yellow silk, next a black silk joint, the rest of gray caribou. Legs—Gray hackle with a claret on the shoulder. Tail—Gold pheasant topping. Wings—Turkey and mallard with sprigs of macaw and pheasant tippet feather; black ostrich head. Hooks Nos. 1–0, and 1.

cn. Moose.

Body—Yellow floss ribbed with silver tinsel. Tail—A China pheasant topping. Legs—A yellow hackle; shoulder hackle a guinea-hen. Wings—Two tippet feathers of the China pheasant with fibres of mallard wood-duck on each side; black ostrich head. Hooks Nos. 1, 2, and 3.

co. Moosehead.

Body—Deep claret mohair ribbed with gold twist. Tail—A topping. Legs—A claret hackle with three turns of orange hackle at the shoulder. Wings—Strips of brown mallard and tippet feather with red macaw feelers; black ostrich head. Hooks Nos. 1, 2, and 3.

cp. Fiery-brown.

Body—Fiery brown mohair ribbed with gold tinsel. Tail—A small topping mixed with wood-duck. Legs—A brown-red hackle. Wings—Brown mallard with a little wood-duck and golden pheasant neck-feather mixed; black head. Hooks Nos. 1, 2, and 3.

cq. Parson.
cr. Gold Wing.
cs. Gold Mallard.
ct. Kircudbrightshire.
cu. Eagle.
cv. Tartan.
cw. Last Fly.
cx. Atkinson.
cy. Strachan.
cz. Parson.

Body—Black mohair tipped with orange and ribbed with silver twist. Tail—A small topping. Legs—A black hackle. Wings—Brown turkey-tail; black head. Hooks Nos. 2 and 3.

da. Ross.

Body—Cinnamon-colored floss ribbed with gold twist. Tail—Sprigs of green parrot. Legs—A furnace hackle. Wings—Brown mallard mixed with peacock herl; black ostrich head. Hooks Nos. 1–0 and 1.

Hooks (including a full series of unmounted hooks, of recent and aboriginal manufacture).

32737. Artificial flies for salmon, trout, and bass—Continued.

db. Forsyth.
dc. Chamberlin.
dd. Green.
de. Whitcher.
df. Langrin.
dg. Emmet.
dh. Captain.
di. Major.
dj. Darling.
dk. Durham Ranger.
dl. Goldfinch.
dm. Britannia.
dn. Popham.
do. White Tip.
dp. White Wing.
dq. Drake Wing.
dr. Dun Wing.
ds. Black and Yellow.
dt. Blue Doctor.
du. Kate.
dv. Ruggles.
dw. Little yellow May Dun, with water-color sketch of original.
dx. Oak Fly, with water-color sketch of original.

Body—Orange floss silk ribbed with ash-colored silk thread or a little floss, the ash-color to be shown well at the tail and shoulders. Wings—From a scapular feather of the woodcock. Legs—A furnace hackle or red cock's hackle with a black list up the middle. For Pennsylvania, hooks Nos. 8 to 10; for New York, hooks Nos. 6 to 8; for New England, hooks Nos. 5 and 6.

dy. Black Gnat, with water-color sketch of original.

Body—Black ostrich herl. Wings—From the quill-feather of the rice-bird or grakle. Legs—Black hackle. For Pennsylvania, hooks Nos. 10 to 12; for New York, hooks Nos. 8 to 10; for New England, hook No. 8.

dz. Fern Fly, with water-color sketch of original.

Body—Orange floss silk. Wings—From the quill-feather of the summer-duck wing; the smaller-sized hooks can be dressed from the wing-feather of the blue-jay. Legs—A red cock's hackle. For Pennsylvania, hooks Nos. 8 to 10; for New York, hooks Nos. 6 to 8; for New England, hooks Nos. 5 and 6.

ea. Yellow Sally, with water-color sketch of original.

Body—Any yellowish fur ribbed with yellow or apple-green silk. Wings—From a wing-feather of a white hen or white pigeon stained pale yellow. Legs—A white cock's hackle stained in the same dye. For Pennsylvania, hooks Nos. 6 to 8; for New York, hooks Nos. 5 and 6; for New England, hooks Nos. 4 and 5.

Hooks (including a full series of unmounted hooks, of recent and aboriginal manufacture).

32737. Artificial flies for salmon, trout, and bass—Continued.

eb. Alder Fly, with water-color sketch of original.

Body—Peacock's herl. Wings—From a feather of a brown hen's wing. Legs—A red cock's hackle or a black cock's hackle will answer tolerably well. For Pennsylvania, hooks Nos. 8 to 10; for New York, hooks Nos. 5 and 6; for New England, hooks Nos. 4 and 5.

ec. Sky Blue, with water-color sketch of original.

ed. Little dark Spinner, with water-color sketch of original.

ee. Turkey Brown, with water-color sketch of original.

ef. Magalloway.

Body—Half black ostrich and half brown mohair ribbed with gold twist. Tail—Short fibers of yellow macaw. Legs—A furnace hackle of the shoulder. Wings—Strips of brown quill-feathers of the peacock; black ostrich head. Hook No. 3.

eg. Bemis Stream.

Body—Chestnut mohair ribbed with gold tinsel. Tail—China pheasant topping. Legs—A chestnut hackle. Wings—Strips of brown peacock mixed with bustard. Hooks Nos. 1 and 2.

eh. Mooselocmaguntick.

Body—About equal parts mixed of gray squirrel's fur and pea-green mohair ribbed with gold twist. Tail—Four strands of argus feathers. Legs—A brown bittern hackle. Wings—Gray speckled turkey, white tipped (dye yellow), with a strip of argus feather on each side; green ostrich head. Hook No. 1.

ei. Molechunkemunk.

Body—Orange floss silk ribbed with gold tinsel, backed with silver twist. Tail—China pheasant topping. Legs—A furnace hackle. Wings—Brown mallard; black ostrich head.

ej. Willow Finch.

Body—Yellow seal's fur ribbed with silver twist. Tail—Sprigs of tippet feathers mixed with yellow macaw. Legs—A yellow hackle, at the shoulder a small guinea-hen stained yellow. Wings—Strips of swan feather dyed yellow with a spray of guinea-hen (tail-feather) dyed yellow; black ostrich head. Hooks Nos. 1, 2, and 3.

ek. Oquassac.

Body—Red claret mohair ribbed with pink floss. Tail—Yellow tag with pieces of argus and tippet feathers. Legs—A claret hackle. Wings—Strips from the quill-feather of the argus pheasant; black ostrich head. Hooks Nos. 1-0 and 1.

el. Welokennebago.

Body—Red pig's hair ribbed with broad gold tinsel, backed with silver twist. Tail—A mixture of black turkey tipped with white and scarlet ibis. Legs—Scarlet hackle. Wings—Fibers of red macaw mixed with strips of black and brown turkey tipped with white; black ostrich head.

Hooks (including a full series of unmounted hooks, of recent and aboriginal manufacture).

32737. Artificial flies for trout, salmon, and bass—Continued.

em. Capsuptuc.

Body—Silver tinsel ribbed with gold twist. Tail—Fibers of China pheasant tail mixed with guinea-hen and red macaw. Legs—A brilliant scarlet hackle. Wings—Mixed and to be made full. Two strips of brown turkey tipped with white-brown mallard, China pheasant tail and guinea-hen; black ostrich head. Hooks Nos. 1-0, 1, and 2.

en. Orange Grouse.
eo. Thunder and Lightning.
ep. Lough Gill.
eq. Lillie.
er. Black Ant.
es. Blue Blow.
et. Mare.
eu. Hare's Ear.
ev. Ibis.
ew. Seth Green.
ex. Red Creeper.
ey. Turkey Brown.
ez. Queen of the Waters.
fa. Governor.
fb. White Miller.
fc. Lion.
fd. Water-witch.
fe. Atkinson.
ff. Our Own Pattern.
fg. Green Drake, with water-color sketch of original.

Body—Pale straw-colored floss silk ribbed with brown silk thread or floss; the extremities are of brown peacock's herl. Tail—Three rabbit's whiskers. Wings—Made from a mottled feather of mallard stained a pale yellowish-green. Legs—A grizzled cock's hackle stained a yellowish-green in the same dye. For Pennsylvania, hooks Nos. 6 to 8; for New York, hooks Nos. 4 to 6; for New England, hooks Nos. 3 and 4.

fh. Gray Drake, with water-color sketch of original.

Body—The middle part of white floss silk ribbed with silver twist; the extremities of brown peacock's herl. Tail—Three rabbit's whiskers. Wings—Made from a gray mottled feather of the mallard. Size of hooks same as green drake.

fi. Orange Dun, with water-color sketch of original.

This fly is equally attractive to trout, and is a prime favorite in its day—the end of June, July, and August. Body—Dark orange silk. Tail—Two fibers of brown mallard feather. Wings—From the quill-feather of the large red-crowned woodpecker. For Pennsylvania, hooks Nos. 6 to 8; for New York, hook No. 6; for New England, hooks Nos. 5 and 6.

fj. Green Mackerel, with water-color sketch of original.
fk. Brown Mackerel, with water-color sketch of original.
fl. Marlow Buzz, with water-color sketch of original.

Hooks (including a full series of unmounted hooks, of recent and aboriginal manufacture).

32737. Artificial flies for trout, salmon, and bass—Continued.

fm. Pale Evening Dun, with water-color sketch of original.

fn. July Dun, with water-color sketch of original.

Body—Mole's fur and pale-yellow mohair mixed and spun on yellow silk. Tail—Two or three whiskers of a dark dun hackle. Wings—From the quill-feather of a blue-jay. Legs—Dark dun hackle. For Pennsylvania, hooks Nos. 8 to 10; for New York, hooks Nos. 6 to 8; for New England, hooks Nos. 5 and 6.

fo. Gold-eyed Gauge-wing, with water-color sketch of original.

fp. Butcher, No. 1.

fq. Blue Ranger.

fr. Black Ranger.

fs. Colonel.

ft. Children's Farlow.

fu. Candlestick Maker.

fv. Baker.

fw. Butcher.

fx. Namsen.

fy. Black and Teal.

fz. Guinea Hen.

ga. Claret.

gb. Inquichin.

gc. Maxwell Ranger.

gd. August Dun, with water-color sketch of original.

Body—Brown floss silk ribbed with yellow silk thread. Tail—Two rabbit's whiskers. Wings—Feather of a brown hen's wing. Legs—A dark red hackle. For Pennsylvania, hook No. 8; for New York, hook No. 6; for New England, hook No. 5.

ge. Orange, with water-color sketch of original.

Body—Orange floss silk ribbed with black silk. Wings—Dark part of the blue-jay's wing. Legs—A very dark furnace hackle. For Pennsylvania, hooks Nos. 8 to 10; for New York, hooks Nos. 6 to 8; for New England, hook No. 6.

gf. Cinnamon, with water-color sketch of original.

Body—Fawn-colored floss silk ribbed with red silk thread. Wings—Feather of a yellow-brown hen's wing. Legs—A ginger hackle. For Pennsylvania, hook No. 8; for New York, hook No. 6; for New England, hook No. 6.

gg. Blue-bottle, with water-color sketch of original.

Body—Bright blue floss silk with a few turns of brown floss at the shoulder. Wings—From the quill-feather of a water-hen. Legs—Black hackle from a cock wrapped down the principal part of the body. For Pennsylvania, hook No. 8; for New York, hook No. 6; for New England, hook No. 5.

gh. Whirling-blue Dun, with water-color sketch of original.

Body—Squirrel's red-brown fur mixed with yellow mohair. Tail—One or two whisks of a pale ginger hackle. Wings—From the quill-feather of a mallard. For Pennsylvania, hook No. 8; for New York, hook No. 8; for New England, hook No. 6.

Hooks (including a full series of unmounted hooks, of recent and aboriginal manufacture).

32737. Artificial flies for trout, salmon, and bass—Continued.

gi. Willow, with water-color sketch of original.

Body—Mole's fur mixed with a little fine yellow mohair. Wings—From the quill-feather of a water-hen or coot. Legs—A dark dun hen's hackle. For Pennsylvania, hooks Nos. 8 to 10; for New York, hook No. 8; for New England, hooks Nos. 5 and 6.

gj. Snowy.
gk. Beauty Snow.
gl. Red Palmer, with water-color sketch of original.

Body—Red mohair ribbed with gold twist or tinsel. Legs—A blood-red cock's (saddle) hackle wrapped nicely over it, working the hackle closely together at the shoulder. For Pennsylvania, hooks Nos. 6, 8, and 10; for New York, hooks Nos. 4, 5, and 6; for New England, hooks Nos. 3, 4, and 5.

gm. Black and Red Palmer, with water-color sketch of original.
gn. Brown Palmer, with water-color sketch of original.
go. Furnace.
gp. Grizzle.
gq. Ginger.
gr. List.
gs. Soldier.
gt. White.
gu. Grizzle Peacock.
gv. Red.
gw. Black Peacock.
gx. Black.
gy. Brown Peacock.
gz. Scarlet.

25548. Salmon fly-book for carrying artificial flies.
25547. Trout fly-book for carrying artificial flies. Loaned by Bradford & Anthony, Boston, Mass. ($4.50.)
26677. Fly-book. Forest & Stream Publishing Company. Property of J. A. [Nichols, Syracuse, N. Y.
26678. Fly-book. " "
26679. Fly-book. " "

Lines (twisted and plaited).

Silk lines.

25633. Series of braided raw-silk lines. (50 yards; C to G.) G. H. Mansfield & Co., Canton, Mass.
25632. Oiled, braided, raw-silk lines. G. H. Mansfield & Co., Canton, Mass.
25628. XXXX silk fish-line. (50 yards.) "
25629. XX silk fish-line. (50 yards.) "
25634. Grass lines. Nos. 0, 1, and 3 cable, and 3 shroud. Bradford & Anthony, Boston, Mass.
25635. Braided grass lines. Bradford & Anthony, Boston, Mass.

Lines (twisted and plaited).

Linen lines.

25626. Hard-braid linen lines. (1 to 5; 50 yards each.) G. H. Mansfield & Co., Canton, Mass.
25631. Series of braided linen fish-lines. (50 yards.) G. H. Mansfield & Co., Canton, Mass.
25612. Linen fish-lines. J. & S. Allen, Walpole, Mass.
25613. Linen fish-lines. "
25618. Linen fish-lines. "
25637. Linen bass-line. (600 feet.) Bradford & Anthony, Boston, Mass.

Cotton lines.

25619. Cotton fish-lines. (20 feet hank.) L. Crandall & Co., Ashaway, R. I.
25620. Cotton fish-lines. (50 feet shroud, laid.) "
25621. Cotton fish-lines. (28-fathom hawser.) "
25622. Cotton fish-lines. (14-fathom hawser.) "
26738. Fishing-line, No. 3. (Sea-Island fly-line.) J. W. Dresser, Castine, Me.
26733. Fishing-line, No. 5. " "
26743. Fishing-line, No. 5. (Golden mackerel, oiled.) " "
26741. Fishing-line, No. 6. (Golden mackerel, oiled.) " "
26735. Fishing-line, No. 6. " "
26744. Fishing-line, No. 7. (Golden mackerel, white.) " "
26739. Fishing-line, No. 7. (White.) " "
26742. Fishing-line, No. 8. (Golden mackerel, oiled.) " "
26740. Fishing-line, No. 9. (Golden mackerel, oiled.) " "
26734. Fishing-line, No. 9. " "
26745. Fishing-lines, No. 7, 8, and 9. (Sea-side cotton chalk-line, white.) J. W. Dresser, Castine, Me.
26736. Fishing-line, No. 10. (14 fathoms, hawser-laid.) J. W. Dresser, Castine, Me.
26732. Fishing-line, No. 11. (Bluefish.) (24 fathoms long, hawser-laid.) J. W. Dresser, Castine, Me.
25624. Tarred cotton fishing-lines. (25-fathom shroud.) L. Crandall & Co., Ashaway, R. I.
25623. Cotton fishing-lines. (50 feet shroud, laid.) L. Crandall & Co., Ashaway, R. I.
26016. Golden mackerel lines of assorted sizes. Made from pure Sea-Island cotton. J. W. Dresser, Castine, Me.
25625. Braided cotton fishing-lines. G. H. Mansfield & Co., Canton, Mass.
25636. Sea-Island cotton mackerel-lines. Bradford & Anthony, Boston, Mass.
25627. Water-proof braided fish-lines. (B to G.) G. H. Mansfield & Co., Canton, Mass.
650. Fishing-line. Northwest coast of America. G. Gibbs.

Whalebone lines.

2193. Whalebone fish-line. Anderson River Indians. Anderson River. R. MacFarlane.
2197. Whalebone line with hooks. Eskimo. Anderson River. R. MacFarlane.
2016. Whalebone line. Arctic coast. B. R. Ross.

Lines (twisted and plaited).

Hide lines.

8787. Fishing-line made of seal-skin. Mahlemut Eskimo. W. H. Dall.
8785. Fishing-line made of seal-skin. Kaviakemut Eskimo. Grantley Harbor, Alaska. W. H. Dall.
8786. Fishing-line made of seal-skin. Unalcet Eskimo. St. Michael's, Alaska. W. H. Dall.
16314. Harpoon-line. Nunivak Island, Alaska. W. H. Dall.
15617. Harpoon-line. Made of skin of young walrus. Alaska. H. W. Elliott.
19376. Harpoon-line made of seal-skin. Rev. James Curly.

Bark lines.

20655. Fishing-line made of cedar bark. Bella Bella, B. C. J. G. Swan.
20888. Fishing-line made of spruce root-fibers. Hannegan Indians. Prince of Wales Islands, Alaska. J. G. Swan.
26821. Harpoon-line, cedar bark. Makah Indians. J. G. Swan.

Kelp lines.

656. Fishing-lines of sea-weed. (*Nereocystis lutkeana.*) Northwest coast of America. G. Gibbs.
6561. Fish-line of kelp. (*Nereocystis lutkeana.*) With halibut-hooks. Haidah Indians. Prince of Wales Archipelago. Dr. T. T. Minor.
1052. Fish-line. (*Nereocystis lutkeana.*) Northwest coast. Lieut. J. W. White.
26818. Halibut-line of kelp. (*Nereocystis lutkeana.*) Makah Indians. Neah Bay, W. T. J. G. Swan.
26819. Fish-line of kelp with halibut-hooks. Clyoquot Indians. Vancouver's Island. J. G. Swan.

(ACCESSORY.) APPARATUS FOR TWISTING LINES

Snoods, leaders, and traces.

"Cat-gut" (sheep) snoods and leaders.
Silkworm-gut snoods.
Flax snoods.
Gimp snoods.
Wire snoods.
Hooks mounted on leaders.

25540. Kinsey trout-hooks. (Tied to gut.) Bradford & Anthony, Boston, Mass.
25542. Aberdeen hooks. (Tied to gut.) Bradford & Anthony, Boston, Mass.
25543. Hollow-point Limerick hooks. (Tied to double gut.) Bradford & Anthony, Boston, Mass.
25544. Hollow-point Limerick hooks. (Tied to twisted gut.) Bradford & Anthony, Boston, Mass.
25545. Hollow-point Limerick hooks. (Tied to gimp.) Bradford & Anthony, Boston, Mass.
25546. Carlisle hooks. (Tied to gimp.) Bradford & Anthony, Boston, Mass.
25539. Hollow-point Limerick trout-hooks. (Tied to gut.) Bradford & Anthony, Boston, Mass.
25541. New York bass-hooks. (Tied to gut.) Bradford & Anthony, Boston, Mass.

Sinkers.

Sinkers and swivels.

——. Sinkers and swivels. For fishing-lines. Bradford & Anthony, Boston, Mass.
25605. Series of sinkers used in fishing for cod and tautog. Newport models. J. M. K. Southwick, Newport, R. I.
25607. Hand-line sinkers. Rhode Island and Eastern Connecticut. A. R. Crittenden.
25716. Cod-line sinker. Central Wharf Company, Provincetown, Mass.
29456. Cod-lead mold. Used to make form in molding. John B. Parsons, Rockport, Mass.
15591. Sinker made of walrus ivory. Pornoox Eskimos, Alaska. H. W. Elliott.

Net-sinkers.

——. Net-sinkers. Wilcox, Crittenden & Co., Middletown, Conn.
29393. Net-rings or sinkers. Wilcox, Crittenden & Co., Middletown, Conn.
29474. Primitive net-sinkers. Used in Wellfleet, Mass. Newell B. Rich, Wellfleet, Mass.
25800. Menhaden-net sinkers (old style). Formerly used about Beverly and Salem, Mass. George B. Foster, Beverly, Mass.
25603. Seine-sinkers. Newport model. J. M. K. Southwick, Newport, R. I.

Spreaders.

Chopsticks.
One-armed chopsticks or "revolving booms."

Floats.

Line-floats of wood, cork, and quill.

25661. Egg-shaped floats. Wm. M. Young, Philadelphia, Penn.
25662. Barrel-shaped floats. " "
25663. Snake-head floats. " "
25664. Quill floats. " "

Seine-floats of cork, wood, glass, and rubber tubing.

25597. Seine-corks. Used at Newport, R. I. J. M. K. Southwick, Newport, R. I.

Harpoon-floats of bladder, inflated skin, and wood.

20898. Seal-skin buoy. Sitka Alaska. J. G. Swan.
1035. Seal-skin buoy. Makah Indians. Puget Sound. J. G. Swan.
19515. Seal-skin buoy. North Greenland. G. Y. Nickerson.
26824. Seal-skin buoy. (Used in whale fisheries.) Clyoquot Indians, Vancouver's Island. J. G. Swan.
26823. Seal-skin buoy. (Used in whale fisheries.) Clyoquot Indians, Vancouver's Island. J. G. Swan.
20594. Seal's bladder buoy. Bella Bella, B. C. J. G. Swan.
827, 4970. Seal-skin buoy with rope. Makah Indians. Neeah Bay, Puget Sound, W. T. J. G. Swan.

Keg and other floats for lobster-pots, gill-nets, &c.
Whale-line drag.

29. (Accessory.) Angling-apparatus.

Reels.

Simple reels for fly-fishing, with and without check.

25590. Brass fishing-reel. Plain, single, with ring. Bradford & Anthony, Boston, Mass.
25589. Brass fishing-reel. Plain, single, with plate. Bradford & Anthony, Boston, Mass.
25587. Brass fishing-reel. Plain, single, with stop and ring. Bradford & Anthony, Boston, Mass.
25588. Brass fishing-reel. Plain, single, with stop and plate. Bradford & Anthony, Boston, Mass.
25577. Hard-rubber fishing-reel, German-silver band. Rim very narrow, with leather case. Bradford & Anthony, Boston, Mass.
25568. Hard-rubber salmon-fishing reel. German-silver rim. Bradford & Anthony, Boston, Mass.
25581. Rubber trout-reel. (Fowler's patent.) Bradford & Anthony, Boston, Mass.
25582. Orvis' patent fishing-reel. German silver, nickeled and perforated. Bradford & Anthony, Boston, Mass.
25567. Fine click brass fishing-reel. (25 yards.) Bradford & Anthony, Boston, Mass.
25586. Brass fishing-reel. Click, with plate. Bradford & Anthony, Boston, Mass.
25585. Brass fishing-reel. Click, with ring. Bradford & Anthony, Boston, Mass.
25575. German-silver trout-fishing reel. Click, with rim. Bradford & Anthony, Boston, Mass.
25565. German-silver trout click fishing-reel. (150 yards.) Bradford & Anthony, Boston, Mass.
25569. Hard-rubber trout-fishing reel. Click, German-silver rim.
25571. Hard-rubber trout-fishing reel. Click, plain rim. Bradford & Anthony, Boston, Mass.
25579. Celluloid trout click fishing-reel. Bradford & Anthony, Boston, Mass.
25560. German-silver trout click fishing-reel. (60 yards.) Bradford & Anthony, Boston, Mass.
25564. German-silver salmon-fishing reel, click. (4½ inch.) Bradford & Anthony, Boston, Mass.

Multiplying reels for bass-fishing, with and without check.

25580. Celluloid fishing-reel. Multiplying and click. Bradford & Anthony, Boston, Mass.
25583. Brass fishing-reel. Multiplying, stop and ring. Bradford & Anthony, Boston, Mass.
26688. Fowler reel. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26687. Fowler reel. " "
26686. Frankfort reel. " "
26689. Plain reel. " "
26916. Winans reel. J. Ross Winans, Baltimore, Md.
26666. Reel for trolling-line. Property of J. A Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

Reels.

Multiplying reels for bass fishing, with or without check.

25574. German-silver fishing-reel. Multiplying; 25 yards. Bradford & Anthony, Boston, Mass.
25570. Hard rubber trout-fishing reel. Multiplying; 60 yards. Bradford & Anthony, Boston, Mass.
25584. Brass fishing-reel. Multiplying stop and plate. Bradford & Anthony, Boston, Mass.
25573. Brass fishing-reel. Multiplying drag; 60 yards. Bradford & Anthony, Boston, Mass.
25572. German-silver fishing-reel. Steel pivot, multiplying drag, 300 yards. Bradford & Anthony, Boston, Mass.
25578. Celluloid fishing-reel. With multiplying click and extra spool. Bradford & Anthony, Boston, Mass.

Gunwale-winches.
Trawl-line rollers.

29432. Trawl-roller or hauler. Provincetown style. Andrew Kennedy, Provincetown, Mass.
29434. Trawl-roller or hauler. Cape Ann style. Samuel Elwell, jr., Gloucester, Mass.
29488. Trawl-roller and eye-plate. First used by Provincetown fishermen. Amasa Taylor, Provincetown, Mass.
29445. Improved trawl-roller and socket. Amasa Taylor, Provincetown, Mass.
25767. Trawl-roller. Used to haul in trawls over the sides of dory. Allen L. McDonald, Gloucester, Mass.
——. Trawl-winch. Gloucester, Mass. G. Brown Goode.

Dredge-line rollers.
Seine-windlasses.

Line-holders.

Whaleman's line-tub.

88 F. C. Sounding-line reel. U. S. Fish Commission.
25009. Harpoon-line and tub. Used in whale-boat. J. H. Thomson, New Bedford, Mass.

Tub for trawl-line. (See under Trawl.)
Winders.
Spools.

25592. Crab-line reel. Used in Newport, R. I. J. M. K. Southwick, Newport, R. I.

Seine-reels.

Rods.

25511. Common rod. Three pieces; ash and hornbeam; brass mounting. Bradford & Anthony, Boston, Mass.

Rods.

25501. General fishing-rod. Nine pieces; German-silver mounting. Bradford & Anthony, Boston, Mass.

25500. General fishing-rod. Six pieces; ash and lancewood; German-silver mounting. Bradford & Anthony, Boston, Mass.

26890. Trunk-rod of greenheart; five-jointed, with extra fourth piece and tip, seven pieces in all; weight, 8 oz.; length, 11 feet 6 inches. Thaddeus Norris, Philadelphia, Pa.

25512. Gudgeon-rod. Three pieces; ash and hornbeam; brass mounting; common. Bradford & Anthony, Boston, Mass.

25510. Common pickerel-rod. Four pieces. Bradford & Anthony, Boston, Mass.

25509. Bait-rod for trout. Four pieces; common. Bradford & Anthony, Boston, Mass.

25513. Jointed rod. Four joints, extra tips, tie guides; made of Calcutta bamboo; full mounted in brass. Bradford & Anthony, Boston, Mass.

25508. Common bass-rod. Four pieces; brass mounted. Bradford & Anthony, Boston, Mass.

25498. Light bass-rod. Four pieces; extra top; ash and lancewood; German-silver mounting. Bradford & Anthony, Boston, Mass.

25497. Bass-rod. Four pieces and extra top for sea-fishing; ash and lancewood; German-silver mounting; jeweled tip. Bradford & Anthony, Boston, Mass.

25496. Sea-bass rod. Ash butt joint, bamboo middle joint, lancewood stock; double guides, jeweled; German-silver mounting; jeweled tips. Bradford & Anthony, Boston, Mass.

25499. Black-bass rod. Four pieces and two extra tops; split bamboo; German-silver mounting. Bradford & Anthony, Boston, Mass.

25502. Fly-rod. Three pieces and extra top; cedar and split bamboo. Bradford & Anthony, Boston, Mass.

25504. Fly-rod. Three pieces and extra top; extra middle joint; bamboo tip case; ash and lancewood; German-silver mounting. Bradford & Anthony, Boston, Mass.

25505. Fly-rod. Four pieces and extra top; ash and lancewood; German-silver mounting. Bradford & Anthony, Boston, Mass.

26887. Salmon-rod of greenheart, four-jointed in cedar case, with extra third piece and tip; weight, 30 oz.; length, 17 feet 3 inches. Thaddeus Norris, Philadelphia, Pa.

25503. Fly-rod for trout. Three pieces and extra top; split bamboo; German-silver mounting. Bradford & Anthony, Boston, Mass.

25506. Trout-rod. Four pieces and extra top; ash and lancewood; German-silver mounting; agate-lined tips. Bradford & Anthony, Boston, Mass.

25507. Salmon-rod. Four pieces and extra tops; bamboo top-case; ash and lancewood; German-silver mounting. Bradford & Anthony, Boston, Mass.

25887. The "Cold Brook," hollow, fly-rod. (Patented June 22, 1875.) J. L. Graves, Springfield, Mass.

25886. The "Cold Brook," hollow, salmon, bass, and angling rod. Nickel-plated, with reel showing an attached line working. (Patented June 22, 1875.) J. L. Graves, Springfield, Mass.

Rods.

The following are the advantages claimed by Mr. Graves for his new rods:

"1. The line is concealed and cannot be caught in underbrush or branches.
2. The strain on the rod is equalized through the entire length.
3. There is no friction through rings or guides except on the tip.
4. The strength of the rod is greatly increased.
5. The weight of the rod is diminished.
6. The wet line is not reeled up to decay.
7. The rod goes under the brush where the big trout lie.
8. It adds greatly to the comfort and pleasure of 'the gentle art.'"

26661. Plain fly-rod. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

26662. Bait-rod. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

26663. Bait-rod. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

26712. English fly-rods. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

26707. Rod-case. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

25882. Split bamboo trout-rod. 11½ feet. H. L. Leonard, Bangor, Me.

26660. Split bamboo rod. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

26888. Extra greenheart trout-rod; cedar case; three-jointed, with one extra middle and two extra tips, six pieces in all; weight, 8 oz.; length, 12 feet. Thaddeus Norris, Philadelphia, Pa.

26889. Rent and glued bamboo trout-rod in cedar case, with one extra middle and two extra tips, six pieces in all; weight, 8 oz.; length, 12 feet. Thaddeus Norris, Philadelphia, Pa.

26883. Plain trout-rod of greenheart; three-jointed, with extra middle and tip, five pieces; weight, 8 oz.; length, ——. Thaddeus Norris, Philadelphia, Pa.

25881. Split bamboo grilse-rod. 14 feet. H. L. Leonard, Bangor, Me.

25883. Split bamboo salmon-rod. 16 feet. " "

25884. Piece of bamboo. Showing spliting process in construction of rods. H. L. Leonard, Bangor, Me.

25885. Piece of bamboo. Showing gluing process in construction of rods. H. L. Leonard, Bangor, Me.

25491. Chapman's combination trolling-pole. Harpoon-line holder and cane. W. D. Chapman, Theresa, N. Y.

Swivels.

25798. Horn cod-line swivel. Much used in olden time by Grand and George's Banks fishermen. George B. Foster, Beverly, Mass.

25945. Cod-line swivel. Central Wharf Company, Gloucester, Mass.

26017. Cod-line gange-swivel. A. R. Crittenden, Middletown, Conn.

25944–6. Patent gange-swivel. Used in cod-fishing. Central Wharf Company, Gloucester, Mass.

29486. Cod-gange swivel. Showing mode of fastening. Lemuel Cook, 2d, Provincetown, Mass.

29487. Haddock-gange swivel. Showing mode of fastening. Lemuel Cook, 2d, Provincetown, Mass.

29392. Wood horse-swivel. Used on cod-line. Capt. E. L. Rowe, Gloucester, Mass.

Swivels.

25942. Halibut-gange. Showing mode of fastening on the hook. A. R. Crittenden.
29457. Shark-hook swivel. Wilcox, Crittenden & Co., Middletown, Conn.
29395. Primitive trawl-buoy swivels. George B. Foster, Beverly, Mass.
29476. Halibut trawl-buoy swivel. Used by the George's Banks fishermen. Amasa Taylor, Provincetown, Mass.
29498. Trawl-buoy swivels. Alex. McCurdy, East Gloucester, Mass.
25187. Trawl-buoy rope swivel. Wilcox, Crittenden & Co., Middletown, Conn.
25946. Trawl-buoy rope swivel. Central Wharf Company, Provincetown, Mass.

Clearing-rings.
Disgorgers.

29435. Trawl-sheave bushing. Samuel Elwell, jr., Gloucester, Mass.
——. Halibut "gob-stick." Philip Merchant, Gloucester, Mass.

V. NETS.

ENTANGLING-NETS.

Meshing-nets (entangling in meshes).

‡ *Barrier-nets.*

Rabbit-nets, used by Indians of the Southwest.

14405–6–7–8–9–10–11–12–13–14–15–16–17–18–19–20–21. Small rabbit-nets. Pi-Ute Indians, Southern Utah. Maj. J. W. Powell.
14500. Small rabbit-net. Pi-Ute Indians, Southern Utah. Maj. J. W. Powell.
11245. Small rabbit-net. " " "
12058. Small rabbit-net. " " "
12051, 53. Large rabbit-net. " " "
11247. Large rabbit-net. " " "
14430–31. Large rabbit-net. " " "
14401–2–3. Large bunt net (for rabbits). " "
19049. Rabbit-net. Cooyuwee Pi-Ute Indians, Southern Utah. Stephen Powers.

These nets are used largely in the capture of rabbits for food; they are stretched in long lines by means of slender crotched sticks which support the upper edge. The chaparral is then scoured for miles by the Indians on horseback and on foot, and the rabbits, which are very abundant in the sage-brush, are driven into the meshes of the nets. The species thus captured are the sage-hare (*Lepus sylvaticus* var. *artemisiæ*), and the mule or jackass hare (*Lepus callotis*).

Bird mesh-nets.

Gill-net.

Gill-nets used in Great Lakes.

25751. Model of Lake Michigan gill-net. Scale: Depth, 1 inch to the foot; length, ⅛ of inch to the foot. J. W. Milner.

The gill-netting in use on the Great Lakes is knit from linen thread, two and three ply (25–4, 2-cord, and 30–50, 3-cord), from eleven to twenty-

Meshing-nets (entangling in meshes).

Gill-nets used in the Great Lakes.

two meshes in depth, 3¾ to 5 inch mesh. The nets when hung or mounted for use contain from one to three pounds of webbing, and range in length from 60 to 120 yards, and in depth from 4½ to 6 feet. They are set in gangs of from three to five nets, and three to five gangs are laid out in one setting usually by aid of sailboats or steamers. (See models of Mackinaw boat and lake gill-net steamer.)

For floating the upper line, round or octagonal floats of bark, or wooden pickets about two and one-half feet in length, are used. Sinkers are of lead or stone. The nets are set in from 20 to 100 fathoms of water, the lead-line resting upon the bottom. They are taken out once a week and dried.

They are used principally for the capture of the whitefish (*Coregonus albus, &c.*), and the lake trout (*Salmo namaycush*), though most of the common lake fishes are taken in these meshes. Sea-Island cotton (3, 4, 5, and 6 thread) is being largely substituted for linen in their manufacture.

The weight of the twine preferred by fishermen varies in different localities, that used in Green Bay being the finest, that in Lake Erie next, then Lakes Michigan and Superior, and heaviest in Lake Huron. Lake Ontario consumes about 5,000 pounds of netting annually, Erie 7,500, Huron 6,000, Michigan 20,000, Green Bay 2,500, and Lake Superior 5,000. The aggregate length of this netting is probably about 4,575,000 yards.

Sisco and herring gill-nets.

Used in the Great Lakes in the capture of the sisco (*Salmo siscowet*) and the lake herring (*Argyrosomus clupeiformis*).

*These nets are hung and set like the whitefish-nets previously described.

They are knit from linen thread (35–60, 2-cord) 30 to 40 meshes in depth, and 2½ to 3 inch mesh. About 2,500 pounds are annually consumed, chiefly about Sacket's Harbor, N. Y., and Lakes Huron and Michigan. (E. B. French.)

Anchored gill-nets.

Used on the coast from Cape Cod to Cape Hatteras in the capture of the bluefish (*Pomatomus saltatrix*).

*These nets are knit from cotton twines (12–18 thread, ½ patent), and are 75 to 100 fathoms in length, and 80 to 200 meshes in depth, from 4½ to 6 inch mesh. They are heavily leaded and anchored with lead-line on the bottom, off-shore, in from 10 to 20 fathoms of water. They are chiefly used by New York fishing vessels; probably 1,000 or more are in use on the coast. In the winter season the fishing vessels follow the bluefish as far south as Cape Hatteras. (E. B. French.)

Hook or trap gill-nets.

Used on the coast of New Jersey in the capture of the Spanish mackerel (*Cybium maculatum*), &c.

*These nets are peculiar in shape. They are straight nets, anchored in the form of an L with a hook-like continuation, heavily leaded, and with anchors at the angles. They are knit from cotton twines (9–12 thread, ½ patent), the outer end being of finer twine. Their length is about 100 fathoms, depth 75–100 meshes, 3¾ to 4 inch mesh. About 100 of these are in use on the coast, mostly between Sandy Hook and Barnegat Light. (E. B. French.)

* The nets belonging to this series are enumerated below, among Nos. 26848–26880.

Meshing-nets (entangling in meshes).

Salmon hook-gill-net of the Saint Lawrence.

‡ *Drift-nets.*

† *Those drifting across the tide.*

Shad gill-nets used in Southern rivers.

26126, 26131–2. Model of shad gill-net. American Net and Twine Company, Boston and New York.
Used in rivers of the Atlantic coast.

These nets are knit of linen thread (22–50, 3-cord, and 20–60, 2-cord). They range in length from 50 to 200 fathoms, and in depth from 25 to 90 meshes, $4\frac{3}{4}$ to 5 inch mesh. They are used exclusively as drift-nets.

On the Connecticut River about 4,000 pounds of this netting are used annually. The average weight of a net is 30 to 40 pounds, its depth 45 to 50 meshes, $5\frac{1}{4}$ to $5\frac{1}{2}$ inches.

On the Hudson River about 7,500 pounds are annually used, fine threads (50–75, 2-cord), 100 to 200 fathoms in length, and from 50 to 90 meshes in depth, $4\frac{3}{4}$ to 5 inch, weight from 15 to 30 pounds to the net.

In the Delaware, Potomac, and Chesapeake 20,000 pounds are used, from 30 to 60 meshes in depth, and $5\frac{1}{2}$ (30 to 40, 2-cord) length, 75 to 100 fathoms.

In the rivers of North Carolina nets are made from coarse twine (22–35, 3-cord, and 20–35, 2-cord) 25 to 40 meshes in depth, 5–$5\frac{1}{2}$ gauge. Their length is about 100 yards. About 25,000 pounds are used annually.

In the rivers of South Carolina the twine is slightly finer than in North Carolina (25–35, 3-cord), 25 to 60 meshes deep, the size otherwise about the same. 1,500 pounds are used annually.

In Georgia and Florida about 6,000 pounds are used. This netting is knit from linen thread (30–40, 3-cord, and 25–35, 2-cord) 40 to 60 meshes in depth; $4\frac{3}{4}$ to $5\frac{1}{4}$ mesh. About 18 to 24 pounds are used in a net; its length 100 yards. (E. B. French.)

Herring gill-nets.

Used in Hudson and Delaware Rivers in capture of the alewife or herring (*Pomolobus pseudoharengus*).

*Knit from 30–40, 2-cord, thread, from 45 to 100 meshes in depth, $2\frac{1}{2}$ to 3 inch mesh; about 13 pounds to a net on the Hudson and 6 to 7 pounds on the Delaware; the nets on the Hudson, 60 to 100 meshes, on the Delaware from 35 to 60. About 2,500 pounds used annually. (E. B. French.)

Mullet gill-nets.

Used principally on the Saint John's River, Florida.

Knit from coarse linen thread (16–25, 3-cord) and from 33 to 50 meshes in depth. The size of mesh varies with the season: in July $3\frac{1}{2}$, August $3\frac{3}{4}$, September 4 inch. The average length of the nets is 100 to 150 yards. About 1,500 to 2,000 pounds in use on Saint John's River, and about 1,000 pounds of cotton ($\frac{1}{6}^{2}$ and $\frac{1}{6}^{2}$ to $\frac{2}{6}^{0}$) nets on the Gulf coast from 30 to 40 meshes in depth, $3\frac{1}{4}$ to $3\frac{3}{4}$, not varying with seasons. (E. B. French.)

*The nets belonging to this series are enumerated below, among Nos. 26848–26880.

Meshing-nets (entangling in meshes).

Series of samples of gill-netting. American Net and Twine Company, Boston and New York:

26848.	Depth	15	meshes,	size of mesh	1¼	inch,	No.	20 (3)	thread.
26849.	"	35	"	"	2¼	"	"	40 (2)	"
26850.	"	100	"	"	2¼	"	"	25 (3)	"
26851.	"	35	"	"	2½	"	"	30 (3)	"
26852.	"	50	"	"	2⅝	"	"	25 (3)	"
26853.	"	22	"	"	2⅝	"	"	35 (2)	"
26854.	"	50	"	"	2⅝	"	"	16 (3)	"
26855.	"	100	"	"	2⅞	"	"	25 (3)	"
26856.	"	100	"	"	3	"	"	25 (3)	"
26857.	"	100	"	"	3¼	"	"	25 (3)	"
26858.	"	16	"	"	3½	"	"	25 (2)	"
26859.	"	16	"	"	3½	"	"	30 (2)	"
26860.	"	40	"	"	3⅝	"	"	18 (3)	"
26861.	"	50	"	"	4	"	"	20 (3)	"
26862.	"	17	"	"	4	"	"	35 (3)	"
26863.	"	35	"	"	4	"	"	40 (3)	"
26864.	"	16	"	"	4⅛	"	"	35 (3)	"
26865.	"	45	"	"	4⅛	"	"	40 (3)	"
26866.	"	14	"	"	4¼	"	"	35 (3)	"
26867.	"	14	"	"	4¼	"	"	50 (3)	"
26868.	"	14	"	"	4½	"	"	35 (2)	"
26869.	"	14	"	"	4½	"	"	35 (2)	"
26870.	"	16	"	"	4½	"	"	35 (3)	"
26871.	"	16	"	"	4½	"	"	50 (3)	"
26872.	"	18	"	"	4½	"	"	50 (3)	"
26873.	"	16	"	"	4⅝	"	"	35 (3)	"
26874.	"	45	"	"	5	"	"	30 (2)	"
26875.	"	12	"	"	5	"	"	30 (2)	"
26876.	"	60	"	"	5	"	"	35 (2)	"
26877.	"	65	"	"	5	"	"	40 (2)	"
26878.	"	35	"	"	5⅛	"	"	35 (3)	"
26879.	"	75	"	"	5¼	"	"	35 (3)	"
26880.	"	11	"	"	6	"	"	35 (3)	"

‡ *Drift-nets.*

† *Those drifting across the tide.*

26135. One bale of brown gill-netting. American Net and Twine Company, Boston, Mass.

26139. One bale of white gill-netting. American Net and Twine Company, Boston, Mass.

†† *Those drifting along the tide.*

Mackerel gill-nets.

Herring gill-nets.

26124–28–38. Herring gill-net. Used on the coast of New England and the Provinces in the capture of the herring (*Clupea harengus*). American Net and Twine Company, Boston, Mass.

Meshing-nets (entangling in meshes).

Herring gill-nets.

These nets are about 40 yards long and 150 meshes in depth. They are stretched together in big gangs, floated by pieces of wood and weighted by stones. They are made of 45 and 6 thread cotton from 14 to 20 yarn, 2½ inch average mesh. American Net and Twine Company, Boston, Mass.

——. Model of herring gill-net. American Net and Twine Company, Boston, Mass.

Other gill-nets.

1667. Gill-net. Anderson River Eskimos. Anderson River, H. B. T. R. MacFarlane.

7962. Gill-net made of animal fiber. Kawquettle Indians. Vancouver's Island, B. C. Dr. T. T. Minor.

19043. Gill-net. Cooyuwee Pi-Ute Indians. Pyramid Lake, Nev. Stephen. Powers.

4765. Gill-net made of "Babiche." Anderson River Indians. Mackenzie's River district, H. B. T. MacFarlane.

Pocket-nets (entangling in pockets).

Trammel-nets.

25270. Model trammel-net. 10 feet long, 2 feet wide, 2 and 5 inch mesh. William E. Hooper & Sons, Baltimore, Md.

26118–29. Trammel-net. American Net and Twine Company.

Used for general fishing in rivers and ponds of Northern Mississippi Valley.

These nets range from 20 to 75 yards in length, 4 to 6½ feet in depth. The inside netting of finer linen thread (20–25, 3-cord), mesh 2–2½, ⅛ deeper than the outside. The outside netting-wall from cotton (15–21 thread), mesh 8 to 10 inches. (E. B. French.)

31. ENCIRCLING-NETS.

Seines.

Seines.

26134. Seven bales of brown seine-netting. Used for manufacture of pounds, traps, seines, fykes, &c. American Net and Twine Company, Boston, Mass.

26139. Eighteen bales of white seine-netting. American Net and Twine Company, Boston, Mass.

Seal-seines.

17270. Seal-net made of sinew. Found wrapped about a mummy. Kagamil Island, Alaska. Alaska Commercial Company, San Francisco, Cal.

Manatee-seines.

Shad-seines.

Mullet-seines.

Menhaden-seines.

Seines.

Bass-seines.
Bluefish-seines.
Capelin-seines.
Herring-seines.

26119. Model of herring-seine. Used on coasts of New England and the Provinces in capture of herring (*Clupea harengus*), and in the Hudson, Potomac, Delaware, and Chesapeake, and in North Carolina. American Net and Twine Company, Boston, Mass.

26127. Model of herring-seine. American Net and Twine Company, Boston, Mass.

Shad-seines.

These are used in the rivers of the Atlantic and Gulf coast.

These seines are knit from cotton thread. On the Connecticut River, the seines are of nine-thread twine, 5–5½ mesh; on the Hudson, the mesh is four inches, knit of six-thread twine in the wings and nine thread in the bunt. In the Delaware, Potomac, and Chesapeake, the mesh is 3½ to 4½ inches, the twine 12, 15, and 18 thread; in North Carolina, the mesh is 2½ to 3½ inches, and the cotton twine twelve-thread. (E. B. French.)

Cod-seines.

26137. Model of cod-seine. Used in Provinces in capture of cod (*Gadus morrhua*). American Net and Twine Company, Boston and New York. 30 to 40 feet deep. Mesh 5 inches, 18 to 21 thread, cotton.

Lance-bunts.
Baird collecting-seines.

26136. Baird net. Designed by Prof. S. F. Baird. Used by naturalists in collecting small fishes in brooks and ponds and in following behind large seines to secure the small species which escape through the meshes, six-thread coarse cotton. American Net and Twine Company, Boston, Mass.

26126. Model of Baird net. American Net and Twine Company, Boston, Mass.

Bait-seines.

26123, 26130. Model of minnow-seine. Used by amateurs in capture of minnow-bait. ¼ to ⅝ inch mesh, six-thread cotton twine. American Net and Twine Company, Boston, Mass.

26121. Model of minnow-seine, with bag. Used by fishermen to secure bait for eel-pots. American Net and Twine Company, Boston, Mass.

26668. Minnow-seine. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

Other seines.

2232. Seine. Anderson River Eskimos. Mackenzie's River district. Robert MacFarlane.

2444. Seine made of "babiche." Tschutchi Indians. Capt. John Rodgers, U. S. N., North Pacific Exploring Expedition.

Seines.

Other seines.

2445. Seine made of "babiche." Tschutchi Indians. Capt. John Rodgers, U. S. N., North Pacific Exploring Expedition.

2446. Hand-seine made of grass. Tschutchi Indians. Capt. John Rodgers, U. S. N., North Pacific Exploring Expedition.

2447. Hand-seine made of grass. Tschutchi Indians. Capt. John Rodgers, U. S. N., North Pacific Exploring Expedition.

19234. Salmon-net. McCloud River Indians. Shasta County, Cal. Livingston Stone.

20648. Salmon-net. Indians of Northwest coast. Fort Simpson, B. C. J. G. Swan.

2231. Hand-seine. Anderson River Eskimo. Mackenzie's River district, H. B. T. R. Kennicott.

21368. Fishing-net. Made from fiber of milkweed (*Asclepias* sp.). Hoochnorre Indians. South Eel River, Cal. Stephen Powers.

7929. Fishing-net. Made from fibers of pineapple (*Tillandsia* sp.). Mirador, Mex. Dr. Sartorius.

897. Fishing-net made of willow bark. Kootchin Indians. Mackenzie's River district, H. B. T. R. Kennicott.

4883. Net made of "silkweed." Fort Crook Indians. Fort Crook, Cal. Capt. J. W. T. Gardiner.

Hoop-nets.

Handle, or dip nets.

Bull-nets (worked with ropes and blocks).

Scoop-nets (herring-nets, pound-scoops, car-scoops, &c.).

25608. Bow of scoop-net. Used in dipping fish from smack's well. J. M. K. Southwick, Newport, R. I.

25165. Series of scoop-net hoops. Wilcox, Crittenden & Co., Middletown, Conn.

83, F. C. Frame of dip-net. Used in Bay of Fundy herring fisheries. U. S. Fish Commission.

25229. Folding dip-net frame. U. S. Fish Commission.

26141. Dip-nets. American Net and Twine Company, Boston, Mass.

26141. Minnow dip-nets. " "

26141. Crab dip-nets. " "

Landing-nets.

25494. Jointed staff and folded net-ring. Bradford & Anthony, Boston, Mass.

25492. Nason's patent net-staff and ring. Flexible ring carried inside of staff. C. F. Nason, patent August 31, 1875. Bradford & Anthony, Boston, Mass.

25493. Nason's patent solid net-staff. With flexible ring. C. F. Nason, patent August 3, 1875. Bradford & Anthony, Boston, Mass.

25235. Folding handles for dip-net or lance. U. S. Fish Commission.

25638. Braided linen landing-net (waterproofed). Bradford & Anthony, Boston, Mass.

25639. Braided silk landing-net. Bradford & Anthony, Boston, Mass.

658. Dip-net. Used in the capture of the oulachan (*Osmerus pacificus*). Northwest coast of America. G. Gibbs.

21725. Dip-net. Used by McCloud River Indians in fishing in small streams. Shasta County, Cal. Livingston Stone.

Hoop-nets.

Landing-nets.

26669. Landing-net. Property of J. A Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26711. Landing-net. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26664. Landing-net and rod. Property of J. A Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

Eskimo auk-nets.

15616. Bird-net frame. Aliout Eskimos. Alaska. Henry W. Elliott.

Baited hoop-net:

Crab-nets.

26591–2. Models of lobster-nets. Used on the coast of California. Johnson & Young, Boston, Mass.
26801. Crab-nets. American Net and Twine Company, Boston and New York.
32710. Open cunner-net. Gloucester, Mass. G. Brown Goode.
32711. Folding cunner-net. " "

Trailing-nets.

Trawls:

Beam-trawl.
(Otter-trawl.)

26882. Model of beam-trawl. American Net and Twine Company, Boston and New York.
32720. Model of beam-trawl. Made by J. G. Adam. U. S Fish Commission.

Dredges:

Flange, or ordinary dredge.
Rake-dredge.
Oyster-scraper.
(Coral-dredge.)

26140. Four brown dredge-nets. Oyster-dredging, &c. American Net and Twine Company, Boston and New York.

Towing-nets:

Surface tow-nets.

25228. Towing-net frame. U. S. Fish Commission.

Folding or jerk nets.

Purse-nets:

Mackerel purse-seines (pursed by weight).
Menhaden purse-seines.

29387. Model of mackerel purse-seine. Used on North Atlantic coast in capture of mackerel (*Scomber scombrus*). American Net and Twine Company, Boston, Mass.

Folding or jerk nets.

Menhaden purse-seines.

26,120. Model of mackerel purse-seine. American Net and Twine Company, Boston, Mass.

These purse-seines range in length from 120 to 220 fathoms, and from 750 to 1,000 meshes in depth, reaching the depth of 20 to 30 fathoms of water. The average mesh is 2½ inches. They are made of fine Sea-Island cotton twine, and cost from $750 to $1,500 complete. About 300 are now in use on the coast of North America. The pursing weight varies from 100 to 150 pounds.

26122–26125. Model of purse-seine. American Net and Twine Company, Boston, Mass.

90 to 150 fathoms in length, 300 to 650 meshes in depth, 1¾ to 2¾ fine Sea-Island twine. Wings, 9 to 12; bag, 15 to 21, coarse.

25179. Snatch-block used in pursing-seine. Higgins & Gifford, Gloucester, Mass.

25186. Ring or thimble for pursing-seine. Wilcox, Crittenden & Co., Middletown, Conn.

Cast-nets:

Mullet cast-nets.

Pompano cast-nets.

Bait cast-nets.

25046. Casting-net. Diameter 4½ feet. William E. Hooper & Sons, Baltimore, Md.

26799. Mullet cast-net. Diameter 5½ feet, 1½-inch mesh.

26800. Shrimp cast-net. Diameter 4½ feet, ¾-inch mesh.

Clap-nets for birds.

Rabbit spring-nets.

Spring-weirs (St. Lawrence).

Sieve-traps (for birds).

(**Accessory.**) Parts of nets and apparatus for manufacture.

Raw material of nets.

Babiche. (See under D. 20.)

Netting-fiber.

Netting-twine.

659. Netting-twine. Indians. Northwest coast of America. G. Gibbs.

14432. Fiber used for making nets. Pi-Ute Indians. Southern Utah. Maj. J. W. Powell.

29376. 38 bales of white netting-twine. American Net and Twine Company, Boston, Mass.

Samples of netting hung to lines. William E. Hooper & Sons, Baltimore, Md.:

25048. 1-inch mesh, 12 thread, 1 fathom long, 2 feet deep.

25049. 1⅛ " 12 " 1 " 2 "

25047. 1¼ " 12 " 1 " 2 "

25051. 1½ " 12 " 1 " 2 "

25050. 2 " 12 " 1 " 2 "

(**Accessory.**) Parts of nets and apparatus for manufacture.

Netting-needles.
Mesh-needles.
Hanging-needles.
Eskimo netting-needles.

25596. Seine-needle (home made). J. M. K. Southwick, Newport, R. I.
25593. Seine-needle. " "
25712. Seine-needle (called hanging-needle). N. H. Payne, Wellfleet, Mass.
——. Knitting-gauge. Used in regulating size of mesh. American Net and Twine Company, Boston and New York.
9839. Seine-needle. Eskimos. Northeastern America. S. F. Baird.
16202. Seine-needle. Magemut Eskimos. Nunivak Island, Alaska. W. H. Dall.
5613. Seine-needle of wood. Yukon River. W. H. Dall.
5614. Needle of bone. Norton Sound Eskimos. "
16170, 16169, 16166, 16167, 16168, 16171, 16196. Seine-needles of bone. Magemut Eskimos. Nunivak Island. W. H. Dall.
1180. Seine-needle of wood. Chirikoff. W. H. Dall.
1315. Netting-needle. Eskimos. Smithsonian Institution.
9839. Seine-needle of bone. Eskimos of Northeastern America. S. F. Baird.

VI. TRAPS.

32. Pen-traps.

Pocket-traps.

Pitfalls:
  Pits, covered.
  Barrel-traps.
  Jar mole-traps.
  "Rabbit-tipe," used in England.
Salmon-baskets (Columbia River).
Salmon-weirs (Upper Columbia River).
River-weirs, with pockets:
  Eel-traps.
Fish-slides:
  Shad-slides, used in the rivers of North Carolina.

25830. Fish-slide. Used in James River, Virginia. Scale 1 inch to the foot. J. G. Adam.
25831. Fish-slide (with box). Used in rivers of Virginia. Scale 1 inch to the foot. J. G. Adam.

Labyrinth-traps.

Corrals.
Turkey-traps.

Labyrinth-traps.

Weirs, or pounds.

12102. Bar-weir. Used in Bay of Fundy herring fisheries. Scale, 1 inch to 15 feet. Capt. W. S. Treat, Eastport, Me.

12101. Fish-weir. Used in Dennis River, Me. Scale, ½ inch to the foot. Prof. S. F. Baird.

12105. Salmon-weir. Used in rivers of Maine. Dennis River. Scale, 1 inch to 8½ feet. Prof. S. F. Baird.

26833. Model of heart-weir. American Net and Twine Company.

25750. Model of pound-net. Used in Lake Michigan. Scale, 3½ feet to 1 inch. Waukegan, Ill. D. D. Parmalee.

——. Model of weir, or heart-net. Used on southern coast of New England. Scale, 1 inch to 8 feet. Spindel's Cove, Wood's Holl, Mass. Prof. S. F. Baird.

26731, 26746. Models of brush-weirs. Used in the Bay of Fundy in capture of herring (*Clupea harengus*). W. B. McLaughlin, Grand Manan, N. B.

25829. Model of fish-weir. Used by aborigines of Virginia in the fifteenth century. From figures in De Bry. J. G. Adam.

25820. Model of fish-trap. Valley of Yukon River. Scale, 1 inch to the foot. W. H. Dall.

Funnel-traps.

Fish-pots.

1754. Wicker fish-pot (model). Used in West Indies. 5 to 15 fathoms. Scale, 1 inch to the foot. H. O. Claughton, St. Martin's, W. I.

32738. Fish-pot (model). Bermudas. Scale of ¼. Made from wood of submerged cedar. G. Brown Goode.

Lobster-pots.

12100. Lobster-pot. Used in Bay of Fundy. 4 to 10 fathoms. Scale, ¾ inch to the foot. Prof. S. F. Baird.

24801. Lobster-pot. Used in Narragansett Bay, in 10 to 15 fathoms. Scale 3 inches to the foot. J. M. K. Southwick, Newport, R. I.

29296. Model of Noank lobster-pot. G. L. Green, Noank, Conn.

29531. Lobster-pot net. Used on coast of New Jersey. American Net and Twine Company, Boston and New York.

26586-7-8-9. Models of lobster-pots. Used on the coast of New England. Johnson & Young, Boston, Mass.

29363. Model of lobster-pot. N. C. Smith, Stonington, Conn.

Eel-weirs, with leaders.

Eel-pots, without leaders.

——. Eel-pot. Used in Fisher's Island Sound, Conn. Scale, one-half. James H. Latham, Noank, Conn.

25015-16. Wicker eel-pot, two funnels, with leaders. Used about Martha's Vineyard, in 3 to 10 fathoms. Capt. Josiah Cleveland, maker, Vineyard Haven, Mass.

25014. Wicker eel-pot (three funnels). Used about Martha's Vineyard. Capt. Josiah Cleveland, maker, Vineyard Haven, Mass.

29530. Eel-pot net. Used on the coast of New Jersey. American Net and Twine Company, Boston and New York.

Labyrinth-traps.

Eel-pots, without leaders.

25016. Leaders for eel-pot (Nos. 25014–15–16). Used in Martha's Vineyard. Capt. Josiah Cleveland, Vineyard Harbor, Mass.
26802. Basket eel-pot. American Net and Twine Company.
25018. Roots of young pine trees (*Pinus strobus*). Used in manufacture of eel-pots. Vineyard Haven, Mass. G. Brown Goode.

Barrel-pots for eels.

Set-nets.

32733. C. Set-net. Diameter of largest hoop, 15 inches. U. S. Fish Commission.

Fykes (set-nets with leaders).

25045. Fyke-net with wings. Diameter, 3 feet. Wm. E. Hooper & Sons, Baltimore, Md.
26113. Model of minnow-fyke. American Net and Twine Company, Boston [and New York.
26114. Minnow-fyke. " "
26117. Minnow-fyke. " "

Bird-fyke.

26115, 26116. Model of bird-net. American Net and Twine Company, Boston and New York.

Bass-traps.

25704. Bass-trap. Used in Peconic Bay and Fisher's Island Sound. Scale, ½ inch to the foot. Charles T. Potter.

Door-traps.

† *Closed by the falling of a door.*

Box-traps (figure 4).

25833. Horan's box-trap. Used in Philadelphia Zoological Gardens. Scale, one-half. Henry Horan.
25478. Box-trap. Used in capture of hares, possums, etc. Scale, one-half. T. N. Woltz.

Traps with hanging doors.

——. Self-setting trap. Used in capture of muskrats, hares, &c. Scale, one-half. Henry Horan.
25703. Self-setting trap. To be set in mouth of rabbit-burrow. Scale, one-half. E. Herron.

Double box-traps.

25477. Double box-trap. Used in capture of hares, possums, &c. Scale, one-half. T. N. Woltz.

Door-traps.

Spring-door traps.

†† *Closed by falling of whole trap.*

Bowl-traps.

Cob-house bird-traps.

25659. Fall-trap. Used for partridges and other birds. Scale, one-half. T. N. Woltz.

25705. Fall-trap. Used in capture of partridges, &c. Scale, one-half. Henry Horan.

Pigeon-nets.

††† *Closed by falling of tide.*

Bar-weirs, arranged with the other weirs.

Sheaf-traps.

Sheaf-traps (New York Harbor).

33. CLUTCHING-TRAPS.

Noose-traps.

Snares:

Foot-path and barrier snares.

2033. Snare (made of sinew). Used in capture of lynxes, rabbits, &c. Fort Resolution, H. B. T. R. Kennicott.

19063. Rabbit-snare. Coowoye Pi-Ute Indians. Pyramid Lake, Nevada. Stephen Powers.

25660. Spring-trap (model). Used in capture of hares, grouse, &c. Scale, one-half. E. Herron.

25479. Spring-trap (model). Used for capture of hares, grouse, &c. Scale, one-half. T. N. Woltz.

25832. Model of grouse-snare. Yukon River, Alaska. W. H. Dall.

Springes.

"Round mouse-traps."

Jawed traps.

"Steel traps:"

Newhouse traps.

25262. Newhouse trap. No. 0 for rats. Spread of jaws, 3¼ inches; strong enough to hold muskrat. Oneida Community, N. Y.

25261. Newhouse trap. No. 1 for muskrats. Spread of jaws, 4 inches; adapted to capturing the smaller fur-bearing animals. Oneida Community, N. Y.

25260. Newhouse trap. No. 1½ for minks and fishers. Spread of jaws, 4⅞ inches; strong enough to hold fox or fisher. Oneida Community, N. Y.

25259. Newhouse trap. No. 2, for foxes. With double spring; spread of jaws, 4⅞ inches; strong enough to hold an otter. Oneida Community, N. Y.

Jawed traps.

"Steel traps:"

Newhouse traps.

25258. Newhouse trap. No. 3, for otters. Double spring; spread of jaws, 5½ inches. Oneida Community, N. Y.

25256. Newhouse trap. No. 4, for deer. Double spring; spread of jaws, 6½ inches. Oneida Community, N. Y.

25257. Newhouse trap. No. 4, for beavers. Double spring; spread of jaws, 6½ inches. Oneida Community, N. Y.

25255. Newhouse trap. No. 5, for bears. Spread of jaws, 11¾ inches; weight of each spring, 2 pounds and 10 ounces; weight of trap 17 pounds, suitable for taking the common black bear. Oneida Community, N. Y.

25254. Newhouse trap. No. 6, for grizzly bears and moose. Spread of jaws, 16 inches; weight of each spring, 6 pounds and 10 ounces; weight of trap with chain, 42 pounds; made throughout, except the pan, of wrought iron and steel; strong enough to hold the moose or grizzly bear. Oneida Community, N. Y.

29250. Spring fish-trap. (Patented Dec. 9, 1856.) Edwin W. Judge, New Haven, Conn.

Spring bird-nets.
(French bird-trap.)

13153. Spring bird-trap. Used in France. Dr. H. C. Yarrow, U. S. A.

34. FALL-TRAPS.

Crushing-traps.

Dead-falls.
Figure-four traps.

25749. Log dead-fall (model). Used in Mississippi Valley. Scale, 1 inch to the foot. Henry Horan.

15614. Fox-trap. Used by Mahlemut Eskimos. Henry W. Elliott.

Piercing-traps.

Spear-falls.
Mole-traps.
Harpoon-traps.

Spring-hooks.

Pickerel-hooks, arranged with other hooks.

35. MISSILE-TRAPS.

Cross-bow traps.
Spring-guns.

36. ADHESIVE PREPARATIONS.

Bird-lime, &c.
Hoods, boots, &c.

VII. APPARATUS FOR WHOLESALE DESTRUCTION.

37. POISONS.

Food poisons.

Phosphorus poisons.
Strychnine.
Arsenic.
Corrosive sublimate.
Cyanide of potassium.
Opium poisons.

For obvious reasons this series is not exhibited.

Blood poisons: Woorara.

38. ASPHYXIATORS.

Apparatus for smoking out.
(Apparatus for suffocating with fumes of sulphur.)
Apparatus for drowning out.

39. TORPEDOES.

39½. STOMACH-SPRINGS.

Eskimo whalebone springs (used for killing bears).

7442. Stomach-springs. Used by Eskimo in capturing bears, &c. Fort Anderson, Arctic coast. R. McFarlane.

VIII. HUNTING-ANIMALS.

40. HUNTING-MAMMALS.

Dogs.
Hunting-leopard (*Cynailurus jubatus*).
Weasels and ferrets.
Otters.

41. ACCESSORIES TO HUNTING-DOGS.

Dog-whips.
Dog-whistles.

29255. Dog-call (double).	Edwin M. Judge,	New Haven, Conn.
29256. Dog-call.	"	"
29257. Dog-call.	"	"
29258. Dog-call.	"	"
29259. Dog-call.	"	"

Dog-whistles.

29260. Dog-call. Edwin M. Judge, New Haven, Conn.
29261. Dog-call. " "
29262. Dog-call for whip. " "
29254. Police-call. " "
29255. Railroad-call. " "

Dog-collars.
Dog-food.
Dog-carts.
Dog-muzzles.

42. HUNTING-BIRDS.

Falcons.
Owls.
Cormorants (*Carbo sinensis*). Used in fishing in China.

43. ACCESSORY TO HUNTING-BIRDS.

Hoods.
Perches.
Cormorant-collars.

44. HUNTING-FISHES.

Remora (used in West Indies and Australia).

IX. DECOYS AND DISGUISES.

45. BAITS.

Natural baits.

Flies and other insects. (This should include a collection of those insects which, as the favorite food of fishes, are imitated in making artificial flies.) Arranged with hooks. (See under 29 *a*.)
Worms.
Mollusks.
Salted baits (prepared).
Menhaden.
Herring.
Squids.
Clams, long.
Clams, hen.
Pea-roe of cod (used in French sardine-fisheries, and largely exported).
Grasshopper paste, used as a substitute for pea-roe.
Tolling baits, "stosh," &c.

These articles, on account of their perishable nature, cannot well be exhibited.

Natural baits.

(Accessories.) Methods of preparing baits:
Bait-cutters.
Bait-mills.
Bait-ladles.
Wheelbarrows for bait-clams (Nantucket).

32740. Beach-cart. Nantucket, Mass. W. H. Chase, 2d.

Bait-boxes and cans.

25560. Five bait-boxes. Bradford & Anthony, Boston, Mass.
26394. Bait-box. Forest & Stream Publishing Company. Property of John [A. Nichols, Syracuse, N. Y.
26393. Minnow-pail. " "
26392. Crab-can. " "
26391. Grasshopper-can. " "

Bait-needles.

Artificial baits.[1]

Trolling-spoons.[1]
Spinners.[1]
Squids and jigs.[1]
"Bobs," used in southern waters.[1]
Artificial flies.[1]

Accessories to artificial baits.[1]

a. Fly-hooks.[1]
b. Raw materials for making artificial flies.[1]
c. Tools for making artificial flies.[1]

Pastes.

DECOYS.

Scent-decoys.
Sound-decoys.

Animal-calls, whistles, &c.

7452, 2149. Deer-call. Eskimos. Mackenzie's River district. R. MacFarlane.
2253. Deer-call. Eskimos. Mackenzie's River district. R. Kennicott.

Bird-calls.

26653. Turkey-call. Used in Illinois. J. W. Milner.
26654. Turkey-call. Used in Maryland. G. W. Woltz.

[1]Arranged with hooks.

Sight-decoys.

Living decoy animals and birds.
Decoy-dogs, used in hunting ducks.
Stool-pigeons.
Tame decoy-ducks.
Tame decoy-brants.
Imitations of animals and birds.:

Decoy-waders (carved in wood).

25042. Black-breasted plover (*Squatarola helvetica*). P. Brasher, New York.
25041. Long-billed curlew (*Numenens longirostris*). " "
25043. Yellow-shanks (*Gambetta flavipes*). " "

Decoy-waders (stamped in tin).

25909. Black-breasted plover (*Squatarola helvetica*). Herman Strater & Sons, [Boston, Mass.
25908. Golden plover (*Charadrius virginicus*) " "
25906–7. Red-breasted snipe (*Macrorhamphus griseus?*). " "
25910–11. Monstone (*Strepsilas interpres*). " "

These decoys are made hollow, stamped out in halves, hinged at head and tail to open and nest together. One dozen plover weigh 3 pounds, with box occupying a space of 8½ by 9 inches, 3 inches deep. Patented.

Decoy swimming-birds (made from the skins of birds).

7127. Skin of canvas-back duck (*Fuligula vallisneria*) stuffed with dry tulé grass and fitted for decoy with strings and weights. Pi-Ute Indians. Robert Ridgway.
7128. Skin of red-head duck (*Fuligula ferina*, var. *americana*), fitted for use as decoy. Pi-Ute Indians. Robert Ridgway.
7129. Same. Robert Ridgway.
4783. Same. Pi-Ute Indians. Carson Lake, Utah. Capt. J. H. Simpson.
19031. Skin of widgeon (*Marecca americana*), fitted for use as decoy. Cooyuwee Pi-Ute Indians. Pyramid Lake, Nevada. Native name, *Imoodoowe*. Stephen Powers.
29532. Skin of a pin-tail duck (*Dafila acuta*), stuffed for use as a decoy. P. Louis Jouy, Washington, D. C.

Decoy swimming-birds (carved in wood).

25040. Brant (*Bernicla brenta*). P. Brasher, New York City.
25035. Mallard (*Anas boschas*). Henry A. Stevens, Weedsport, N. Y.
25242. " " Male. John Krider, Philadelphia.
25241. " " Female. " "
29540. Black duck (*Anas obscurus*). Francis Burritt, South Norwalk, Conn.
25034. " " A. Stevens, Weedsport, N. Y.
26051. Pin-tail duck (*Dafila acuta*). John Krider, Philadelphia.
26054. Bald-pate duck (*Marecca americana*). Male. John Krider, Philadelphia.
26055. " " Female. " "
25038. " " P. Brasher, New York City.
25031. Blue-wing teal (*Querquedula discors*). Henry A. Stevens, Weedsport, N. Y.

Sight-decoys.

Imitations of animals and birds:

Decoy swimming-birds (carved in wood).

25245. Blue-wing teal (*Querquedula discors*). Female. John Krider, Phila-[delphia.
25246. " " Male. " "
25244. Green-wing teal (*Nettion carolinensis*). " " "
25243. " " Female. " "
25039. Broad-bill duck (*Fuligula marila*). P. Bracher, New York City.
26058. " " Male. John Krider, Philadelphia.
26059. " " Female. " "
29541. " " Francis Burritt, South Norwalk, [Conn.
25029. Scaup duck (*Fuligula affinis*). Henry A. Stevens, Weedsport, N. Y.
25032. Red-head duck (*Fuligula ferina*, var. *americana*). Henry A. Stevens, [Weedsport, N. Y.
26056. " " " Male. John Krider, [Philadelphia.
26057. " " " Female. "
25033. Canvas-back duck (*Fuligula vallisneria*). Henry A. Stevens, Weeds-[port, N. Y.
25037. " " Male. John Krider, Phila-[delphia.
26053. " " Female. " "
25036. Whistle-wing duck (*Bucephala americana*). Henry A. Stevens, Weedsport, N. Y.
25030. Butter-ball duck (*Bucephala albeola*). Henry A. Stevens, Weedsport, N. Y.

Decoy swimming-birds (stamped in tin, with wooden bottoms and head balance weights).

26047. Mallard (*Anas boschas*). Male. Herman Strater & Sons, Boston.
25905. " " Female. " "
26048. Black duck (*Anas obscura*). Male. " "
26049. " " Female. " "
26045. Red-head duck (*Fuligula ferina*, var. *americana*). Male. Herman Strater & Sons, Boston.
26046. Read-head duck (*Fuligula ferina*, var. *americana*). Female. Herman Strater & Sons, Boston.
26043. Canvas-back duck (*Fuligula vallisneria*). Male. Herman Strater & [Sons, Boston.
26044. " " Female. "
25901. Whistle-wing duck (*Bucephala americana*). Male. "
25902. " " Female "
25903. Sheldrake (*Mergus americanus*). Male. "
25904. " " Female. "
25900. Surf duck (*Œdemia perspicillata*). "
26702. Decoys. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

Imitations of fishes.

29366. Lure-fish. D. H. Fitzhugh, Bay City, Mich Used in fishing through the ice for salmon-trout.

Sight-decoys.

Imitations of fishes.

29294. Lure-fishes. William Morris, Lake City, Mich. Used in fishing through the ice for pickerel.

These lure-fishes are used to decoy large fish under holes in the ice so that they may be within reach of the spear.

Blanket decoy (for antelopes).

Lanterns and other apparatus for fire hunting and fishing.

Lanterns for still-hunting.

25238. Centennial dash-lamp. For sportsman's hunting-wagons. White Manufacturing Company, Bridgeport, Conn.

25239. Dash-lamp. Used for hunting and fishing. White Manufacturing Company, Bridgeport, Conn.

25236. Jack-lamp. For night-hunting and general camp uses. White Manufacturing Company, Bridgeport, Conn.

25240. Johnson's jack-lamp support. For night hunting and fishing. White Manufacturing Company, Bridgeport, Conn.

25237. Fishing-lamp. White Manufacturing Company, Bridgeport, Conn.

Lanterns for weequashing, or fire-fishing, for eels.

29365. Boat-lanterns. Used in bow of boat in weequashing or spearing eels by night. Southern New England, James H. Latham, Noank, Conn.

12107. Birch-bark used for torchlight fishing. Passamaquoddy Indians. Eastport, Me. Dr. E. Palmer.

32739. Torch for night fishing. Halifax, N. S. Capt. H. C. Chester.

47. Covers.

Movable covers.

Masks.

Deer heads and antelope heads.

8420. Antelope decoy. Made from head of prong-horn antelope (*Antilocapra americana*). Prescott, Ariz. Dr. E. Coues, U. S. A.

——. Antelope decoy. Arizona. Dr. J. B. White, U. S. A.

5537. Deer decoy. Made from head of mule-deer (*Cervus macrotis*). Apache Indians. Edward Palmer.

Movable copses.

Covers for hunters.

Covers for boats.

Stationary covers.

Hunting-lodges.

X. PURSUIT, ITS METHODS AND APPLIANCES.

48. Methods of transportation.

Personal aids.

Snow-shoes.
Skates.
Alpenstocks and staves.
Portable bridges.

Animal equipments.

Harness:[1]
- Horse-trappings.
- Dog-harness.
- Girths, sinches.
- Bits, cabrestos, spurs.

Saddles:[1]
- Riding-saddles.
- Pack-saddles.
- Aparejos.
- Riding-pads (for buffalo hunting).
- Fur pack-saddle (Hudson's Bay Territory).

Vehicles:[1]
- Deer-sledges.
- Dog-sledges.
- Wagons.
- Dog-carts.
- Fish-carts, used in Nantucket.

Boats.

Hunting-boats, fishing-boats:
- Birch canoes.

Birch-bark canoes.

Used by Indians in hunting and fishing.

26615. Bark canoe. Passamaquoddy Indians. Eastport, Me. E. Palmer.
26614. Bark canoe. Sixteen feet long, thirty-seven inches wide. Montagnard Indians of Besamis. Labrador. R. H. Powell.
7630. Bark canoe. (Model.) Lower Ingalik, Alaska. W. H. Dall.
858. Bark canoe. (Model.) Chippeway Indians, Athabasca and Great Slave Lakes. B. R. Ross.
2358. Bark canoe. (Model; scale, about 1 inch to foot.) Northeastern America. J. Varden.

[1] Arranged with Ethnological series.

Boats.

Birch-bark canoes.

859. Bark canoe. (Model.) Slave Indians of Mackenzie's River. Fort Simpson, H. B. T. B. R. Ross.
641. Bark canoe. (Model.) Upper Columbia River. G. Gibbs.
12107. Birch-bark, used in manufacture of canoes. Passamaquoddy Indians. Eastport, Me. E. Palmer.

Wooden sea canoes.

Used by Indians of Northwest coast in hunting and fishing.

20592. Wooden canoe. Northwest coast. J. G. Swan.
13102. Wooden canoe. (Model.) Queen Charlotte Island. J. G. Swan.
2616. Wooden canoe. (Model.) Northwest coast. U. S. Exploring Expedition. Capt. Charles Wilkes, U. S. N.
20592. Wooden canoe. (Model.) Bella Bella, B. C. J. G. Swan.
2583. Wooden canoe. (Model.) Oregon. U. S. Exploring Expedition. Capt. Charles Wilkes, U. S. N.
1785. Wooden canoe. (Model). Northwest coast. Dr. George Suckley.
11082. Wooden canoe. (Model.) Alaska. Lieutenant Ring, U. S. N.
20895. Wooden canoe. (Model.) Haidah Indians. Prince of Wales Island, Alaska. J. G. Swan.

Wooden canoes.

Used by Indians of the Northwest coast in whaling and sea fisheries.

26785. Wooden canoe. (60 feet long.) British Columbia. J. G. Swan.
16269. Wooden canoe. (Model.) Sitka, Alaska. W. H. Dall.
21595. Wooden canoe. (Model.) Alaska. Dr. J. B. White.
21594. Wooden canoe. (Model.) Alaska. "
639. Wooden canoe. (Model.) Northwest coast. George Gibbs.
7285. Wooden canoe. (Model.) Neah Bay, Washington Territory. J. G. Swan.
16269. Wooden canoe. (Model, painted.) Ihliuket Indians. Sitka, Alaska. W. H. Dall.
640. Wooden canoe. (Model.) Northwest coast. George Gibbs.
1871. Wooden canoe. (Model.) Vancouver's Island. Dr. C. B. Kennerly.
811. Wooden canoe. (Model.) " "
26761. Wooden canoe. Model of Haidah canoe (with masts and pushing-sticks, for traveling, fishing, &c.). Queen Charlotte Island. J. G. Swan.
26760. Wooden canoe. Model of Haidah canoe (for deep sea and war). Queen Charlotte Island. J. G. Swan.
26763. Wooden canoe. Model of wooden canoe (with masts, paddles, pushing-sticks, and ivory harpoons). J. G. Swan.
26762. Wooden canoe. Model of Cogwell canoe (for deep sea and war). Flathead Indians. J. G. Swan.
26787. Wooden canoe. British Columbia. J. G. Swan.
26786. Wooden canoe. " "
26785. Wooden canoe. Dug-out canoe (60 feet long). British Columbia. J. G. Swan.

Boats.

Kyaks or bidarkas.

Used by Eskimos of Arctic America in hunting and fishing.

26617. Kyak. (13 feet 9 inches long, 30 inches wide.) Northwest coast. Sitka, Alaska. William Burling.
14971. Kyak. (Model.) Alaska. W. H. Dall.
16275. Kyak. (Model.) Kodiak. "
14971. Kyak. (Model, one hole.) Alaska. W. H. Dall.
21609. Kyak. (Model, one hole.) Alaska. Dr. J. B. White.
1127. Kyak. (Model, two-hole.) Koloshes, Aleutian Islands. Capt. J. R. Sands.
14970. Kyak. (Model.) Aleutian Islands. W. H. Dall.
21604. Kyak. (Model, 2-hole.) Alaska. Dr. J. B. White.
21605. Kyak. (Model, 3-hole.) Alaska. "
21610. Kyak. (Model, 3-hole.) Alaska. "
21606. Kyak. (Model, 4-hole.) Alaska. "
8788. Kyak. (Model.) Unabeet Eskimo. Norton Sound, Alaska. W. H. Dall.
26618. Kyak. Eighteen feet long, 22 inches wide. Greenland. Eskimo Joe.
562. Kyak. (Model.) East coast, Upernavik. Dr. Hayes.
14750. Kyak. (Model, with bird-spear, harpoon, and seal-skin float.) Eskimos, Tusiack, North Greenland. Prof. S. F. Baird.
2230. Kyak. (Model, with bird-spear, lances, and spear-rest.) Anderson River Eskimos. Mackenzie's River district. R. MacFarlane.

Umiaks or bidarras.

Used by Eskimos in whaling and sea fisheries.

1098. Umiak. (Model.) Fort Anderson, H. B. T. Robert MacFarlane.
15618. Umiak. (Model of frame.) Saint Lawrence Island, Alaska. H. W. Elliott.

Indian raft-boats.

Used in hunting and fishing.

19028. Raft of tulé grass. (Model.) Pi-Ute Indians. Pyramid Lake, Nev. Stephen Powers.

Dug-out canoes.

Used by Indians of Pacific coast.

21358. Dug-out canoe. (Model.) Hoopah Indians, Trinity River, Cal. S. [Powers.
21359. Dug-out canoe. (Model.) " "

Dug-out canoe.

Used in river fisheries of the Southern States.

25728. Dug-out canoe. (Model; scale, inch to foot.) Saint John's River, Florida. Francis C. Goode.

Boats.

Portable boats.

29506. Hegeman portable folding boat. Length, 10 feet; width, 3 feet. Hegeman Portable Folding Boat Company, Ballston Spa, N. Y.

Directions for setting up boat:

1. Unfold the frame.
2. Place the knees and seats in position before fastening the bottom-end section at the ends of the boat.
3. Fasten the bottom-end section to the ends of the boat by the thumb-screws.
4. Place on the canvas with the cords and tie in a single loop (or bow knot).

22218. Model of Colvin portable canvas boat. (Patented Oct. 6, 1874.) R. A. Scott & Co., Albany, N. Y.

"This boat consists of a canvas exterior made thoroughly water-proof by a preparation which preserves the strength of the canvas and prevents decay and oxidation. It is shaped like a canoe, sharp at both ends, and cuts the water handsomely. Along the sides and bottom are leather thongs, by which the boughs and limbs cut for frame can be lashed securely to the canvas, with the assistance of the four leather framing blocks or sockets (two for each end), which connect the stem and stern posts (or prow pieces) with the keelson, and it can be readily put together anywhere in the woods, no tools being required for the purpose, excepting such as are *always carried* by a party of sportsmen, or others, an ax or hatchet only being needed. The whole of it can be packed away in a space 24 inches long, 6 inches wide, and 3 inches thick. The size now made (No. 3), although but 12 feet long, will carry six men, or four men with their necessary baggage, and weighs but 12 pounds when rolled up. It has been tested in a heavy sea with a frame of green boughs cut only two hours before, and carried a weight of 700 pounds safely and easily."

25879–26–112. Model of Fenner's portable boat. With canvas bottom. C. A. Fenner, Mystic River, Connecticut.

One of these models is shown closed up in its case ready for transportation, the other set up for use.

Canoes.

26619. Paper canoe "Maria Theresa." N. H. Bishop, Lake George, N. Y.

Designed by Rev. Baden Powell, of England; built by E. Waters & Sons, of Troy, N. Y. Dimensions: length, 14 feet; beam, 28 inches; depth (amidship), 9 inches; weight of canoe, 58 pounds; weight of canoeist, 130 pounds; weight of outfit, 90 pounds; total, 278 pounds. Rowed by Mr. N. H. Bishop (from Troy, N. Y., 2,000 miles) while on his first geographical journey from the Gulf of Saint Lawrence to the Gulf of Mexico, 2,500 miles, during 1874 and 1875. Since the completion of the voyage all injuries the hull sustained were remedied by the simple application of a sheet of paper and a coat of shellac varnish to the outside of the boat. When in use a piece of canvas covers the undecked part of the canoe and keeps the interior dry. Water-courses traversed by Mr. Bishop during 1874 and 1875: From Quebec, rivers Saint Lawrence and Richelieu,

Boats.

Canoes.

Lake Champlain, and canal to Albany; the Hudson, Kill Von Kull, and Raritan rivers and canal, and the Delaware to Philadelphia; Delaware River and bay to Cape Henlopen, and interior salt-water passages on coast of Maryland and Virginia to Norfolk; the Elizabeth River and canal to Currituck Sound, Albemarle, Pamlico, Cove, Bogue, Stump, and other sounds, to near Wilmington, N. C.; Waccamau River to Georgetown, S. C.; by salt-water creeks, rivers, bays, and sounds along the coast of the United States to Florida; from Atlantic coast, via Saint Mary's and Suwannee rivers, to Gulf of Mexico.

26628. Rice Lake canoe. William English, Peterborough, Ontario.

Coracles or skin boats.

9785. Skin boat. Hidatza (*Gros Ventres*) Indians. Fort Buford, Dakota. Dr. W. Mathews, U. S. A.

Whale boat (used in whale fisheries).

24880. Whale-boat. (Model, with all fittings; scale, 1 inch to foot.) Capt. L. Howland, New Bedford, Mass.

24868. Whale-boat. (Model.) C. H. Shute & Son, Edgartown, Mass.

26839. Whale-boat, 35 feet long. Williams, Haven & Co., New London, Conn.

This boat is mounted with all the gear used in the capture of the whale.

Seine-boat.

25827. Model of Cape Ann seine-boat. Higgins & Gifford, Gloucester, Mass.

This model shows the fittings manufactured for seine-boats by Wilcox, Crittenden & Co., Middletown, Conn., to wit: cleat, stern-cap, snatch-block for pursing-seine, steering-oarlock with stern socket, socket used on side of stern for steering, davit-iron, tow-iron, tow-link and hook, belaying-pin, oar-holder, davit-guard and step-plate, breast-brace and eye-plate or oar-holder swivels, all of which are shown in their proper places by full-size models.

Dorys, sharpies, and dingies.

25657. Nantucket dory. (Model; scale, 1 inch to the foot.) William H. Chase.

Used in gathering clams for codfish-bait.

12678. New England dory. (Models; scale, 1 inch to the foot.) Starling & Stevens, Ferryville, Me.

13493. New England dory. (Model; scale, 1 inch to the foot.) Starling & Stevens, Ferryville, Me.

Used in coast fisheries and bank cod fisheries.

24752. Connecticut sharpy. (Scale, 1 inch to the foot.) Capt. H. C. Chester, Noank, Conn.

Boats.

Italian fishing-boats.

Used in harbor fisheries of California.

22213. Italian fishing-boat. (Model; felucca rig.) San Francisco. Liv-[ingston Stone.
22214. Italian fishing-boat. (Model; felucca rig.) " "
22215. Italian fishing-boat. (Model; felucca rig.) " "
22217. Italian fishing-boat. (Model.) Chinese fishing-boat. San Francisco. Livingston Stone.

Pinkies.

25729. Martha's Vineyard pinkie-boat. (Model; scale, ½ inch to the foot.) William H. Chase.
Used in shore fisheries.
25898. Norman's Land pinkie-boat. (Model; scale, inch to the foot.) Capt. William Cleveland, Vineyard Haven, Mass.
Used in cod and coast fisheries.

Hunting-skiffs.

Used for hunting and fishing in mountain lakes.

26621. Adirondack boat. Full size. Frederick D. Graves, maker, Boston, Mass.
25681. Adirondack boat. (Model; scale, ½ inch to the foot.) Frederick D. Graves, maker, Boston, Mass.
Dimensions: 15 feet long, 3 feet 6 inches wide; weight, 75 to 80 pounds. For the use of sportsmen this boat is claimed to excel, on account of its *extreme lightness* and *durability*, one man being able by means of a yoke to carry the same to any distance without fatigue. This boat is also adapted for family purposes, the *patent rowlock* enabling the most inexperienced rower of either sex to propel the boat with ease and perfect safety, and without any possible chance of losing the oars.
25899. Ausable boat. (Model.) D. L. Fitzhugh, jr., Bay City, Mich.
Used in trout and grayling fishing, with well for live fish. Length, 16 feet; sides twelve inches high inside, 2 feet 10 inches wide on top, 2 feet 4 inches at bottom.
26624. Saint Lawrence boat. (Length, 19 feet; width, 43 inches.) Henry Sweetman, Clayton, N. Y.
Used in trolling in the Thousand Island region. Length, 19 feet; width, 43 inches.
25053. Alexandria Bay boat. (Model.) Cornwall & Walton, Alexandria, N. Y.
Used for hunting and fishing in the Adirondacks and the Saint Lawrence.

Sea boats.

24999. New England surf-boat. (Model; scale, 2 inches to the foot.) Cragin & Sheldon, makers, Boston, Mass.
Used in harbor, lake, and river fisheries.
25001. Whitehall boat (18 feet). (Model; scale, 2 inches to the foot.) Cragin & Sheldon, Boston, Mass.
25000. Ship's yawl. (Model; scale, 2 inches to the foot.) Cragin & Sheldon, Boston, Mass.
Carried by coasters and fishing smacks.

Boats.

Sea boats.

22216. San Francisco yawl. (Model.) Livingston Stone.
Used by Italian fishermen on coast of California.

25028. Nantucket Harbor boat. (Model; scale, 1 inch to the foot.) W. H. Chase.
Used in harbor fishing.

Oyster-canoes.

25003. Chesapeake oyster-canoe (made from two logs). (Model; scale, 1 inch to the foot.) Major T. B. Ferguson, Maryland Fish Commission.
Used for oyster-raking in Chesapeake Bay.

25002. Chesapeake canoe-pungy. (Model; scale, 1 inch to the foot.) Major T. B. Ferguson, Maryland Fish Commission.
Used in oyster-dredging in Chesapeake Bay.

Ducking-boats.

25658. Egg Harbor boat. (Model; scale, inch to the foot. P. Brasher, New York City.
Used for hunting in marshes and bays.

26620. Cedar duck-boat "Central Republic." Built by Capt. George Bogart, surfman, Manahawken, Ocean County, New Jersey. Dimensions: 12 feet long, beam 3 feet 11 inches, depth 12 inches. N. H. Bishop, Lake George, N. Y.

This is the boat in which Mr. Nathaniel H. Bishop, of Lake George, Warren County, New York State, rowed from Pittsburg, Pa., via Ohio and Mississippi Rivers and the Gulf of Mexico (2,600 miles) to Cedar Keys, Fla., while on his second geographical expedition during 1875–76.

26623. New Jersey sneak-box. (Model; scale, 1 inch to the foot.) John D. Gifford, Tuckerton, N. J.

These boats are from twelve to fourteen feet in length; the shelving or sideboards on the stern of the boat are used to hold the decoys while the hunter rows to and from the shooting ground. Used by gunners on Barnegat and Little Egg Harbor Bays, New Jersey.

26622. Maryland ducking-sink. (Model; scale, 1 inch to foot.) J. G. Adam.
Used by gunners on the Potomac River and Chesapeake Bay.

Cat-rigged fishing-boats.

12099. Bay of Fundy cat-boat. (Model; scale, $\frac{1}{4}$ inch to the foot.) Captain Hallet, Eastport, Me.
Used in herring fisheries.

25026. Martha's Vineyard cat-boat. (Model; scale, $\frac{1}{2}$ inch to the foot.) William H. Chase.
Used in coast fisheries.

29537. Providence River cat-boat. (Model; scale, inch to the foot.) J. M. K. Southwick, Newport, R. I.

These boats vary in length from 14 to 19½ feet, and cost from $225 to $425. Used by lobster fisheries and hook and line fisheries. Built by J. U. Stoddard.

26585. Two-masted cat-boat. (Model; scale, about $\frac{1}{2}$ inch to the foot.) Johnson & Young, Boston, Mass.
Used in New England lobster fisheries.

Boats.

Schooner-rigged fishing-vessels.

26809. Noank lobster-boat. (Model.) Capt. H. C. Chester, Noank, Conn.

25825. Block Island boat. (Model; scale, ½ inch to the foot.) Capt. H. C. Chester.
Used in cod fisheries and shore fisheries.

25730. Massachusetts schooner-smack. (Model; scale, ⅛ inch to the foot.) William H. Chase, Boston, Mass.
Used in mackerel fisheries and winter oyster trade.

25731. Maine schooner-smack. (Model; scale, ¼ inch to the foot.) Capt. H. C. Chester.
Used in bank cod fisheries and eastern mackerel fisheries.

26536. Oyster-schooner. (Model; scale, 1 inch to the foot.) T. B. Ferguson, Maryland Fish Commission.
Used in oyster-dredging in Chesapeake Bay.

26584. Schooner-smack. (Model; scale, about ½ inch to the foot.) Johnson & Young, Boston, Mass.
Employed in the New England lobster fisheries.

25727. Noank well-smack. (Model; scale, ½ inch to the foot.) H. C. Chester, Noank, Conn.
Supplies fresh fish to local markets and New York iced-fish trade.

24883. Schooner-yacht. (Model; scale, ⅛ inch to the foot.) William H. Chase.
Used in pursuit of sword-fish and blue-fishing.

22220. Gloucester schooner-smack, style 1835. (Model.) M. M. McFadyn.
First form of sharp-bowed schooner, out of which the present Gloucester schooner was developed.

22219. Old-fashioned topmast schooner. (Model.) A. R. Crittenden.

26584. Schooner-smack. (Model; scale, about ½ inch to the foot.) Johnson & Young, Boston, Mass.
Used in the New England lobster fisheries.

Ships.

25726. Whaling-ship. (Model.) C. H. Shute & Son, Edgartown, Mass.
Crew engaged in cutting in the blubber.

24881. Whaling-bark. (Model; scale, ¼ inch to the foot.) U. S. Fish Commission.
Used in northern whale fisheries.

24882. Merchant ship. (Model; scale, ⅛ inch to the foot.) U. S. Fish Commission.
Used in foreign trade.

Boats of Great Lakes.

26625. Mackinaw boat. (Model.) J. W. Milner.
Used in fisheries of the upper great lakes.

26626. "Norwegian boat" (Model.) J. W. Milner.
Used in Lake Michigan fisheries.

26790. Lake Erie pound boat. (Model.) J. W. Milner.

26627. Square-stern boat. (Model.) J. W. Milner.
Used in Great Lake fisheries.

Steamers.

25824. Menhaden steamer with seine-boats. (Model.) Joseph Lawler, Bristol, Me.

——. Gill-net steamer. (Model.) N. Crooks, Milwaukee, Wis.

Boats.

Steamers.

25027. Gill-net steamer. (Model; scale, 1 inch to 5 feet 5 inches.) Used in Lake Michigan fisheries.

25027. "Camel" floating-dock. (Model; scale, 1 inch to 5 feet 5 inches.) William H. Chase.

26808. "Camel" floating-dock. Model of steamship Cuba. Deposited by F. McFadden, Philadelphia.
Built in 1842 for floating loaded ships over Nantucket bar.

Apparatus accessory to rigging fishing-vessels.

Blocks.

25821. Three single iron-sheaved, plain-hook tackle blocks. Walter Coleman & Sons, Providence, R. I.

25820. Two double iron-sheaved, plain-hook tackle blocks. Walter Coleman & Sons, Providence, R. I.

25806. "Dead-eye" block. Used to secure the standing or fixed rigging to the hull of the vessel. Walter Coleman & Sons, Providence, R. I.

25804. "Heart" block. Used to secure the standing or fixed rigging to the hull of the vessel. Walter Coleman & Sons, Providence, R. I.

25805. "Bull's-eye" block. Used to secure the standing or fixed rigging to the hull of the vessel. Walter Coleman & Sons, Providence, R. I.

25819. One single brass-sheaved, sister-hook tackle block. Walter Coleman & Sons, Providence, R. I.

25152. Series of boat-blocks. Used on small fishing-boats around Cape Cod and Newport. Wilcox, Crittenden & Co., Middletown, Conn.

25817. One single brass-sheaved, sister-hook tackle block. Walter Coleman & Sons, Providence, R. I.

25818. One double iron-sheaved, sister-hook tackle block. Walter Coleman & Sons, Providence, R. I.

25812. Round block. For jib-sheets and small craft. Walter Coleman & Sons, Providence, R. I.

25816. Two double brass-sheaved, plain-hook tackle block. Walter Coleman & Sons, Providence, R. I.

25815. Common iron sheave. Walter Coleman & Sons, Providence, R. I.

25814. Plain brass sheave. Walter Coleman & Sons, Providence, R. I.

25813. Patent brass-roller sheave. Walter Coleman & Sons, Providence, R. I.

29444. Improved swivel-hook. For blocks and general use. Daniel Walker, Providence, R. I.

Clews and hanks.

25139. Ship's clew for courses. Wilcox, Crittenden & Co., Middletown, [Conn.

25140. Earing-ring. " "

25141. Throat-ring. " "

25221. Sail-clew. " "

25135. Series of spectacle or fore-and-aft clews. With patent clew-thimbles. Wilcox, Crittenden & Co., Middletown, Conn.

25136. Improved heart-clew. Wilcox, Crittenden & Co., Middletown, Conn.

25142. Tack-ring. " "

25137. Series of topsail clew-bows. " "

25138. Series of clew-bars. " "

Apparatus accessory to rigging fishing-vessels.

Clews and hanks.

29475. Clement's patent self-adjusting jib-hank. Wilcox, Crittenden & Co., Middletown, Conn.

25143. Jib-head, with patent clew-thimble, used where the jib has been stretched too much; the jib is shortened at the head; and the jib-head is attached to the sail. Wilcox, Crittenden & Co., Middletown, Conn.

25803. Jib-hank. Goes on jib-stay to hold the sail to it. Walter Coleman & Sons, Providence, R. I.

25777. Wooden jib-hank. Samuel Elwell, jr., Gloucester, Mass.

25156. Series of single-stay jib-hanks. Wilcox, Crittenden & Co., Middletown, Conn.

25157. Series of double-stay jib-hanks. " "

25215. Self-adjusting jib-hank for double stay. Clement's patent. Wilcox, Crittenden & Co., Middletown, Conn.

25214. Patent self-adjusting jib-hank. Clement's patent. Wilcox, Crittenden & Co., Middletown, Conn.

29460. Jib-sheet block (peculiar to Gloucester fishing-vessels). Samuel Elwell, jr., Gloucester, Mass.

25158. Pratt's patent jib-hank or yacht-jib. Wilcox, Crittenden & Co., Middletown, Conn.

25207. Hook-and-eye for bonnet of jib. " "

Chocks.

29468. Line-chock for whale-boat. Provincetown style. William W. Smith, Provincetown, Mass.

25180. Line-chock for whale-boat. Wilcox, Crittenden & Co., Middletown, Conn.

25216. Bow-chocks. " "

25195. Boat-chocks. " "

Boat-hooks.

25926. Whaler's large-ring boat-hook. E. B. & T. Macy, New Bedford, Mass.

25614. Whale-boat boat-hook (peculiar to New Bedford). Humphrey S. Kirby, New Bedford, Mass.

25196. Series of wrought-iron boat-hooks. Wilcox, Crittenden & Co., Middletown, Conn.

25200. Boat-hook for gunboat. " "

25226. Boat-hook. U. S. Fish Commission (deposited).

25197. Double Navy boat-hooks with ball points. Wilcox, Crittenden & Co., Middletown, Conn.

25198. Series of Navy boat-hooks with ball points. " "

25199. Series of sharp-pointed boat-hooks. " "

Belaying-pins.

25161. Series of belaying-pins. Wilcox, Crittenden & Co., Middletown, Conn.

25169. Belaying-pin for Cape Ann seine-boat. " "

25765. Two belaying-pins. Samuel Elwell, jr., Gloucester, Mass.

Apparatus accessory to rigging fishing-vessels.

Riggers' hooks.

25194. Deck or hammock hook. Wilcox, Crittenden & Co., Middletown, [Conn.
25195. Hammock-hook. " "
25206. Series of riggers' sister-hooks. " "
25145. Wide-mouthed single-hooks, or Cape Ann bonnet-hooks. Wilcox, [Crittenden & Co., Middletown, Conn.
29478. Bonnet-hook and grommet. " "
29452. Bonnet-hook-and-eye, for removing the jib. Wilcox, Crittenden & [Co., Middletown, Conn.
25155. Series of hooks and thimbles. " "
25943. Purrel hooks. S. Elwell, jr.
25144. Sister-hooks. Wilcox, Crittenden & Co., Middletown, Conn.
25150. Sailmaker's bench-hook. " "
25149. Sailmaker's heaver. " "
25207. Hook-and-eye for bonnet of jib. " "
25185. Hook-and-eye plate. " "

Grommets.

25116. Series of galvanized-iron sail-grommets (Wilcox's patent). Wilcox, Crittenden & Co., Middletown, Conn.
25117. Series of brass sail-grommets (Wilcox's patent). Wilcox, Crittenden & Co., Middletown, Conn.
25118. Series of brass grommets. Conical point, rolled rim. Wilcox, Crittenden & Co., Middletown, Conn.
25119. Series of metallic grommets. First used in America. Wilcox, Crittenden & Co., Middletown, Conn.
25120. Series of brass grommets. First patented in America. Wilcox, Crittenden & Co., Middletown, Conn.
25121. Rope-yarn grommets (with worked holes showing mode of use). Wilcox, Crittenden & Co., Middletown, Conn.
25128. Series of light, galvanized grommet-rings. Wilcox, Crittenden & Co., Middletown, Conn.
25129. Series of heavy galvanized sail-thimbles. Wilcox, Crittenden & Co., Middletown, Conn.
25130. Series of heavy iron sail-thimbles (Navy pattern). Wilcox, Crittenden & Co., Middletown, Conn.
25122. Galvanized-iron ring grommet, with worked holes showing mode of use. Wilcox, Crittenden & Co., Middletown, Conn.
25123. Series of buntline leaders and earing grommets. Wilcox, Crittenden & Co., Middletown, Conn.
25124. Series of eyelet grommets. Used to line worked holes and couplings to Wilcox's patent grommets. Wilcox, Crittenden & Co., Middletown, Conn.
25125. Setting-die. Used for inserting eyelets. Wilcox, Crittenden & Co., Middletown, Conn.
25126. Cutting-punch. Used for cutting grommet-holes. Wilcox, Crittenden & Co., Middletown, Conn.
25127. Series of heavy grommet-rings. Used for earings. Wilcox, Crittenden & Co., Middletown, Conn.
25131. Series of light iron sail-thimbles. Wilcox, Crittenden & Co., Middletown, Conn.

Apparatus accessory to rigging fishing-vessels.

Grommets.

25132. Series of throat-thimbles. Gloucester pattern. Wilcox, Crittenden & Co., Middletown, Conn.
25133. Series of reef-tackle or saddle-thimbles. Wilcox, Crittenden & Co., Middletown, Conn.
25134. Series of brass sail-thimbles. Wilcox, Crittenden & Co., Middle-[town, Conn.
25152. Series of open or riggers' thimbles. " "
25153. Series of wire-rope thimbles. " "

Anchors.

25162. Boat-anchor. Wilcox, Crittenden & Co., Middletown, Conn.
25163. Grappling-iron for dory. " "
25219. Wooden killick or coast anchor. H. C. Chester, Noank, Conn.
29249. Series of sailors' palms (from best to the poorest). Wilcox, Crittenden & Co., Middletown, Conn.
29423. Sailor's palm (left hand). Wilcox, Crittenden & Co., Middletown, [Conn
29424. Sailor's roping palm, A 1 (right hand). " "
29454. Superior cast-steel sail-needles. " "

Mast-gear.

25802. Six "purrel trucks." Used on a rope around the mast to keep the gaff on the mast. Walter Coleman & Sons, Providence, R. I.
25807. Mast-hoop. Used to hold the sail to the mast. Walter Coleman & Sons, Providence, R. I.
25808. Lace trucks. Used on the foot of sail to attach it to the boom. Walter Coleman & Sons, Providence, R. I.
25159. Series of boat-mast hoops. Wilcox, Crittenden & Co., Middletown, Conn.
25810. Mast-head truck. Used on top of mast to display bunting and signals. Walter Coleman & Sons, Providence, R. I.
25811. Mast-head ball. Used on top of the topmast to display bunting and signals. Walter Coleman & Sons, Providence, R. I.
29480. Mast-head gear for dory. Amasa Taylor, Provincetown, Mass.
29481. Mast and boom attachment for dory. " "
29484. Mast and gaff attachment for whale-boat (new style). Used by Provincetown whalers. Wilcox, Crittenden & Co., Middletown, [Conn.
25181. Mast-hinge for whale-boat. " "

Leaders and foot-stops.

25604. Series of sail-leaches and boom foot-stops. Used by Newport smackmen. J. M. K. Southwick, Newport, R. I.
25193. Boom foot-stops. Wilcox, Crittenden & Co., Middletown, Conn.
25181. Mast-hinge for whale-boat. " "
29450. Fair-leader. Used on the booms of Gloucester vessels. Samuel Elwell, jr., Gloucester, Mass.
29463. Patent topsail travelers. Used on square-rigged vessels. Wilcox, Crittenden & Co., Middletown, Conn.
29449. Mast-hook clutch. E. A. Sawyer, Portland, Me.

Apparatus accessory to rigging fishing-vessels.

Boat-builders' materials.

25170. Ring-bolts. Wilcox, Crittenden & Co., Middletown, Conn.
25201. Series of screw eye-bolts. " "
25202. Series of screw ring-bolts. " "
25203. Series of ring-bolts. " "
25211. Common oval head clinch boat-nail. Wilcox, Crittenden & Co., [Middletown, Conn.
25212. Chisel-point clinch boat-nails. "
25213. Countersunk clinch boat-nails. "
25220. Series of boat-rivets. "
25223. Washers or clinch-rings for rivets. "
25178. Stem cap for Cape Ann seine-boat. "
25173. Davit-guard and step-plate for Cape Ann seine-boat. "
25175. Eye-plate or oar-holder swivels for Cape Ann seine-boat. "
25176. Gunwale supporter for Cape Ann seine-boat. "
25173. Davit-guard and step-plate for Cape Ann seine-boat. "
25174. Breast-brace for Cape Ann seine-boat. "
25166. Davit-iron for Cape Ann seine-boats. "
25167. Tow-iron for Cape Ann seine-boats. "
25168. Tow-link and hook for Cape Ann seine-boat. "
29482. Boom-rest or crotch-socket. Used on the taffrail of Cape fishing-vessels when they are "laying to" on George's Banks. Theo. Brown, Wellfleet, Mass.
25204. Water-deck iron. Wilcox, Crittenden & Co., Middletown, Conn.

Rudder-fixtures.

29496. "W. N. Clark's rudder-hanger." (Patented September 3, 1867.) James B. Clark, Chester, Conn.

"Advantages claimed for this hanger: To ship the rudder one has only to enter the tongue (which has the rudder already attached) in the grooved plate from the top just far enough to get it steady, and then let it down, when it will go to its place without further care. Hence arises the first great advantage which this hanger possesses over the old way, viz, the ease and dispatch with which the rudder can be shipped under all circumstances.

Every boatman knows the trouble he has been to, at times, in trying to ship his rudder, while in a seaway, in the dark, or in muddy water, when the eyes in the boat could not be seen; often being obliged to reach down with his hand to get the lower pintle entered.

From the quickness with which the rudder can be shipped, in any position of the boat, and under any circumstances, and its security when shipped, it must recommend itself for all life-boat purposes, where, in case of an emergency, time is of vital importance.

Another advantage is that with this hanger the rudder cannot of itself unship as has often been the case with the common hanger, when the boat has been left for a short time and the tiller worked out, thereby leaving the rudder free, by striking the bottom or anything sufficient to raise it three or four inches, to unhinge and float away. As will readily be seen, this cannot get away until the rudder has risen the whole length of the tongue, which, of itself, would never happen.

Again, with this hanger the rudder can be shipped and unshipped while under full sail, thus making it very convenient for fishermen or

Apparatus accessory to rigging fishing-vessels.

Rudder-fixtures.

any one sailing over a line or seine, as the rudder can be easily raised far enough to pass over and prevent a line getting caught between the rudder and boat, as would otherwise likely ensue, and when over, by simply letting down the rudder, it will go to its place again ready for use.

By this arrangement we are enabled to get the hinges further down on the rudder, thereby bringing the strain on both of them, while in the old way, the lower eye and pintle are so far from the bottom of the boat, in order to facilitate the shipping of the rudder, that this one has to bear nearly all of the strain." (W. N. Clark.)

25190. Rudder-gudgeons. Wilcox, Crittenden & Co., Middletown, Conn.
25182. Rudder-braces for whale-boat. Wilcox, Crittenden & Co., Middletown, Conn.
25209. Series of common wrought-iron rudder-braces. " "
25189. Series of rudder braces. " "
25210. Rudder-braces for New Orleans cat-boat. " "
25183. Rudder-braces for metallic life-boat. " "
29472. Dory breast-hook and stern braces. " "

Cleats.

25779. Stay-sail snatch-cleat. Used by Gloucester fishing-schooners. Allen L. McDonald, Gloucester, Mass.
25809. Wooden cleats. Used to fasten ropes to. William Coleman & Sons, Providence, R. I.
25218. Series of small cleats. Wilcox, Crittenden & Co., Middletown, Conn.
25217. Small brass cleats. " "
25177. Cleats for Cape Ann seine-boat. " "
25191. Boat-cleats. " "

Rowlocks.

25088. Whale-boat rowlock. Wilcox, Crittenden & Co., Middletown, Conn.
25086. Brass wash-streak rowlock. " "
25113. Steering rowlock with stem socket for Cape Ann seine-boat. Wilcox, Crittenden & Co., Middletown, Conn.
25114. Socket used on side of stern for steering. Used on Cape Ann seine-boat. Wilcox, Crittenden & Co., Middletown, Conn.
25085. Seine-boat rowlock. Wilcox, Crittenden & Co., Middletown, Conn.
25070–72. Polished brass rowlocks. " "
25076, 25077. Polished brass rowlock used on gunning-skiff. Wilcox, Crittenden & Co., Middletown, Conn.
25104–5 Galvanized socket rowlocks. Wilcox, Crittenden & Co., Middletown, Conn.
25082–3–4. Brass socket rowlocks. " "
25091–2–3. Plain brass patent swivel rowlock. " "
25094. Galvanized-iron patent swivel rowlock. " "
25101. First patent swivel rowlock put in market. Wilcox, Crittenden & Co., Middletown, Conn.
25079–80–81. Plain brass rowlock used on gunning-skiff. Wilcox, Crittenden & Co., Middletown, Conn.
25106–7–8. Side-plate rowlock used on gunning-skiff. Wilcox, Crittenden & Co., Middletown, Conn.

Apparatus accessory to rigging fishing-vessels.

Rowlocks.

25188. Rowlock for dory. Showing new mode of fastening. Wilcox, Crittenden & Co., Middletown, Conn.

25765. Dory thole-pin rowlock. Samuel Elwell, jr., Gloucester, Mass.

25090. Gun-metal dory rowlock with Southwick's patent fastening. Wilcox, Crittenden & Co., Middletown, Conn.

25100. Dory rowlock, showing patent mode of fastening. Wilcox, Crittenden & Co., Middletown, Conn.

26902. "Lyman's patent bow-facing rowing-gear." William Lyman, Middlefield, Conn.

This bow-facing, *i. e.*, front view, rowing-gear is an invention which allows the rower to face forward instead of backward, pulling in the same manner as with the ordinary oars. This reverse movement is obtained by having the oar in two parts, each part having a ball-and-socket joint, which is attached to the wale of the boat by means of a slot and button, and the two parts connected by a rod (with hinged bearings) which crosses the wale of the boat.

The advantages claimed for this rowing-gear over the ordinary oar, are:

"1. *The oarsman faces the direction in which he goes.*

2. The arrangement of the levers is such that the oarsman applies his strength to the best mechanical advantage, enabling him to row faster and more easily than with any other oar.

3. During the stroke the bow of the boat is slightly raised by the motion of the rower instead of being lowered by his motion as in ordinary rowing.

4. The stroke is longer than with ordinary oars.

5. The oars can be closed up out of the way along the side of the boat without detaching them from the gunwale.

6. It is better from the fact that the blade of the oar is in front and can be *seen* at the beginning of the stroke, so that there is no difficulty in avoiding obstacles, and in a rough sea there is little danger of "catching crabs."

7. With these oars the boatman makes no more effort in steering than in directing his course while walking, and this advantage lessens greatly the effort of rowing.

8. While rowing there is no noise from the bearings.

9. A pair of these oars weigh about 5 pounds more than the oars, but this additional weight has this advantage, that at the beginning and end of the stroke it helps to lower and raise the blade owing to the peculiar position of the oar.

10. When these oars are detached from the boat, no wood or iron projections are left on the wale of the boat, as in ordinary rowing-gear, and thus a serious inconvenience is obviated.

These oars can be attached to and detached from the boat very quickly and they can be closed up in a convenient form for carrying.

These several advantages, viz, *the front view*, the increased ease and speed in rowing, the raising of the bow instead of depressing it, the closing up of the oar out of the way while on the boat, the increasd facility in avoiding obstacles, the diminished effort of hand and eyes in steering, the rowing without noise, the better balance and swing of the oars, have commended this new gear to all who have tried it.

This gear can be attached to almost any boat, and is especially adapted to hunting, fishing, and all kinds of pleasure boating.

Apparatus accessory to rigging fishing-vessels.

Rowlocks.

Almost any one (even if he has never rowed a boat) with an hour's practice can use these front view oars well; it being much easier to learn to use a pair of these oars than a pair of the back view oars." (William Lyman.)

28292. Frederick D. Graves's improved noiseless rowlock. Fred. D. Graves, Boston, Mass.

"The object of this invention is to improve the construction and operation of the class of rowlocks in such manner as, first, to insure the proper inclination of the blade of the oar, and prevent the liability of its catching the water when feathering in recovering, as well as to insure the proper position of the blade of the oar when making the stroke; secondly, to enable the outer end of the oar to be raised when it is being feathered, in order to prevent its contact with the water in rough weather. My improved rowlock, which is composed of an inclosing ring located on a pintle, and an inner ring inclosed by the ring and adapted to be partially rotated therein; the inside of the inclosing ring is provided with a groove which extends almost around it, its continuity being broken only by a stop. The pintle of the rowlock is inserted in a socket attached to the gunwale of the boat, the pintle and rowlock being adapted to turn freely in the socket. From the foregoing it will readily be seen that an oar pivoted in the inner ring is adapted to be partially rotated, in addition to its oscillating movements, so that when its stroke is completed it can be turned, so as to feather the blade in the recover stroke. The stop and shoulders of the inner ring are arranged in such mutual relation that the shoulder abuts against the stop, in feathering the oar, before the blade becomes horizontal in cross-section, so that the cross-section of the oar is necessarily inclined downward from its forward to its rear edge during the feathering stroke, this inclination of the blade preventing its forward edge from engaging with the water and overturning the rower, or, in other words, causing him to "catch a crab." This limitation of the oar in its rotation prevents awkward accidents in feathering, and enables an unskilled person to row with a considerable degree of certainty." (F. D. Graves.)

25098–9. Galvanized-iron patent swivel rowlock. Wilcox, Crittenden & [Co., Middletown, Conn.

25095. Galvanized-iron patent swivel rowlock. " "

25097. Galvanized-iron patent swivel rowlock. " "

25096. Galvanized-iron patent swivel rowlock. " "

25073–4–5. Polished brass patent swivel rowlock. " "

25102–3. Galvanized socket rowlock. " "

25111. Countersunk rowlock. Used on Ohio River flat-boats. Wilcox, Crittenden & Co., Middletown, Conn.

29459. Rowlock. Newport and Providence River style. Wilcox, Critten- [den & Co., Middletown, Conn.

25087. North River pattern rowlock. " "

25089. East River pattern rowlock. " "

29319. Socket-joint rowlock. Frederick A. Gower, Providence, R. I.

"The socket-joint rowlock is intended to increase the speed and improve the convenience of racing boats. Its advantages have proved so easily apparent to oarsmen that there is little need of detailing its strong points, but the following are among its leading features:

Apparatus accessory to rigging fishing-vessels.

Rowlocks.

Wabbling of the oar is wholly avoided. If the oar is a properly good fit, it will have less than ¼ inch of fore-and-aft motion in the lock.

"Catching crabs" is largely avoided by preventing the oar from jamming in the lock at the beginning or end of the stroke. If a "crab" should be caught, the rowlock is not strained, and the oar can be recovered without stopping the boat.

A good grip of the water is assured to even the inexperienced oarsman by the shape of the back of the rowlock, which corresponds to that of the oar. The oar settles itself into the proper position on beginning the stroke.

Any length of reach may be taken by long-built men in going forward, avoiding an evil often complained of.

A space half as wide admits passage of the boat. Equipped with this rowlock a six or four oared shell passes through an opening the width of the outriggers. Crews rowing on narrow or bridged water will find this advantage worth the price of the rowlocks in a single season.

Uniting the rods at a single point brings the whole strength of the outrigger into play at every part of the stroke, and an outrigger thus made can hardly be demolished while the boat stands.

Any oars may be used if of recent pattern, *i. e.*, without the unsightly "bulge" on the loom. It is only necessary to make a slight change in the button, as described below.

Better time may be made. Experiments thus far indicate that the socket-joint rowlock is perceptibly speedier than the common pattern, by the stoppage of wabbling, and general smoothness of action.

Raising a rowlock with the common outrigger is a half hour's trouble with rusty nuts (one or two of which usually twist the bolt off in starting) and experimenting to get the right thickness of washers. With the socket-joint rowlock the same thing is done in two minutes by slipping half or three-quarters of an inch of washers on the shaft under the top rod.

Superior strength. The ordinary iron thole-pins are strong in one direction only; a backward or sidewise blow is likely to bend them. The supporting shaft of the socket-joint rowlock is equally strong all around and withstands a greater strain than the best oars made can apply to it. The whole rowlock is made of the best bronze-metal, which will not rust nor suddenly snap on a frosty morning. Under great mechanical pressure the lower part of the lock has been bent out nearly straight without breaking.

Minor conveniences continually appear in the use of this improvement. There is no wiring to do; no reaching out-board to ship oars; no wriggling the button through the rowlock; no getting grease on the oar-handle by passing through the rowlock; no "losing the button" outside the outrigger; no jamming the button between the thole-pins. When the outriggers are taken off the boat the rods turn on the shaft as a hinge and fold up into a compact bundle not easily bent out of shape nor injured. The rowlocks can be detached entirely, if desired, and each set of rods made into a package as easily carried as a walking-stick, while the rowlock may be put into the oarsman's coat-pocket. Oarsmen having occasion to travel with boats by rail will appreciate this convenience.

This rowlock cannot pretend to be a cheap contrivance; it is made of the best material, and requires expensive labor. Its first cost is more than that of the common pattern, but considering its advantages it will be found cheaper in the end." (F. A. Grower.)

Apparatus accessory to rigging fishing-vessels.

Rowlocks.

25185. Thole-pins for metallic life-boat. Wilcox, Crittenden & Co., Middletown, Conn.
25115. Whitehall pattern rowlock. " "
25112. Detroit or Lake Michigan rowlock. " "
22227. "Acme" oarlock. Pattern invented 1876. " "
25172. Oar-holder for Cape Ann seine-boat (old model). Higgins & Gifford, Gloucester, Mass.
25171. Oar-holder for Cape Ann seine-boat. Wilcox, Crittenden & Co., Middletown, Conn.

Oars.

25022. One pair white-ash oars (9 feet). R. T. Dodge, maker, Boston, Mass.
25021. One pair white-ash oars (6 feet). " "
25041. Pair white-ash oars (12 feet). " "
25011. Pair pine oars (8 feet). " "
25023. Pair white-ash oars (9 feet). " "
25012. Pair spoon oars (10 feet). " "
26811. Pair of oars (7 feet 8 inches). Waters & Son, Troy, N. Y., makers; Delong & Sons, Glens Falls, N. Y.

Paddles.

25020. White-ash paddles. R. T. Dodge, maker, Boston.
643. Indian paddles. Northwestern coast. George Gibbs.
644. Indian paddles. " "
645. Indian paddles. " Cape Flattery. George Gibbs.
646. Indian paddles. " Whaling. "
1790. Indian paddles. "
1791. Indian paddles. "
14284. Indian paddles. "
14285. Indian paddles. "
11471. Indian paddles. Fort Townsend, W. T. J. G. Swan.
11473. Indian paddles. " "
11474. Indian paddles. " "
11363. Indian paddles (for skin canoe used by Aleutians). Alaska. V. Colyer.
11369. Indian paddles (for skin or wooden canoe). " "
11366. Indian paddles. " " "
20902. } Indian paddles (used by Trimsein Indians). Fort Simpson, B. C.
20903. } J. G. Swan.
11434. Indian paddles. Passamaquoddy Indians, Eastport, Me. E. Palmer.
2652. Indian paddles. Northwestern coast. Exploring Expedition. Lieut. Wilkes, U. S. N.
2652. Indian paddles. Northwestern coast. Exploring Expedition. Lieut. Wilkes, U. S. N.
26783. Whaling paddle. Makah Indians, Neeah Bay. J. G. Swan.
26781. Whaling paddle. " "
26782. Whaling paddle. " "
26780. Whaling paddle. " "
26779. Whaling paddle. " "
26778. Whaling paddle. " "
26777. Whaling paddle. " "
26776. Whaling paddle. " "

Apparatus accessory to rigging fishing-vessels.

Paddles.

26775. Whaling paddle. Makah Indians, Neeah Bay. J. G. Swan.
26774. Whaling paddle. " "
26773. Canoe paddle. " "
26772. Canoe paddle. " "
26771. Canoe paddle. " "
26770. Canoe paddle. " "
26769. Canoe paddle. " "
26768. Canoe paddle. " "
26767. Canoe paddle. " "
26766. Canoe paddle. " "
26765. Canoe paddle. " "
26764. Canoe paddle. " "
26810. Double paddle. Made by Waters & Son, Troy, N. Y.; De Long & Sons, Glens Falls, N. Y.

Poles and pushing sticks.

15653. Bidarka pole. Nunivak, Alaska. W. H. Dall.
15653. Bidarka pole. " "
17443. Bidarka pole. Cave, Kagamil Island, Alaska. Alaska Commercial Company.

Candlestick.

Used in hold of vessel while storing fish.

32741. Candlestick. A. McCurdy, Gloucester, Mass.
32692. Candlestick or "Sticking Tommy." Gloucester, Mass. G. Brown Goode.

Fog-horns.

29382. Series of common reed fog-horns, Nos. 1, 2, 3, and 4. Wilcox, Crittenden & Co., Middletown, Conn.
25783. Grand Bank fog-horn. Called by the fishermen "lipper" or "ripper." William H. Weston, Provincetown, Mass.
25281. The Anderson fog-horn. U. S. Fish Commission. (Deposited.)

Deck-scrapers.

25160. Series of ships' deck scrapers. Wilcox, Crittenden & Co., Middletown, Conn.

Dory scoop.

25222. Dory scoop. S. Elwell, jr., Gloucester, Mass.

Flagging irons, &c.

Used by mackerelmen of Capes Cod and Ann to separate barrel staves for the insertion of stems of flag to stop leakage.

29492–94. Flagging iron, hoop-drivers, and adze. M. W. Grant, Wellfleet, Mass.

Pump-bolt or toggle-pin.

Used on fishing-vessels of Cape Cod and Cape Ann.

29470. Pump-bolt or toggle-pin. Wilcox, Crittenden & Co., Middletown, Conn.

Apparatus accessory to rigging fishing-vessels.

Pump box and haft for seine-boat.

29497. Pump box and haft for seine-boat. Andrew Kennedy, Provincetown, Mass.
29499. Pump box and haft for seine-boat. " "

Bung-bucket or "water-thief."

25784. Bung-bucket or "water-thief." Wm. H. H. Weston, Provincetown, Mass.

Devil's claw.

Used to stop the chain when the windlass is wanted for other uses.

29442. Devil's claw. W. H. Hesbolt, Provincetown, Mass.

Box hook.

Used in closing boxes packed full of fish.

32680. Bilge hooks. Gloucester, Mass. G. Brown Goode.
32695. Box hook or "devil's claw." Gloucester, Mass. G. Brown Goode.

Barrel-lifters.

Used for stowing away mackerel-kegs in holds of vessels.

29291. Barrel-lifters. Wilcox, Crittenden & Co., Middletown, Conn.
32679. Chime barrel-hooks. Gloucester, Mass. G. Brown Goode.

Ice-hooks.

For lifting ice on vessel from wharf.
32674. Ice-hooks. Gloucester, Mass. G. Brown Goode.

Lance-hooks.

Fastened on side of whale-boat to hang lance on.

25919. Lance-hooks. E. B. & F. Macy, New Bedford, Mass.

Grappling gear.

Used to recover lost trawls.

25936. Grappling gear. A. McCurdy, Gloucester, Mass.

Marline spikes.

29418. Marline spike or pricker. Used for splicing trawl-lines. Wilcox, Crittenden & Co., Middletown, Conn.
29455. Marline spike. Made from the jawbone of sperm whale. Robert D. Baxter, Provincetown, Mass.
29419. Marline spike. Made from the jawbone of whale. Frank O. Blake, Portland, Me.
25147. Sailmakers' marline spike. Wilcox, Crittenden & Co., Middletown, Conn.
25148. Sailmakers' marline pricker. " "
25164. Series of marline spikes. " "
25778. Fishermen's marline spike or trawl-line splicer. Alex. McCurdy, East Gloucester, Mass.

Apparatus accessory to rigging fishing-vessels.

Marline spikes.

25146. Series of hickory hand fids. Wilcox, Crittenden & Co., Middletown, Conn.
25672. Copper marline spike. Made at sea by Thomas Freeman. Used for splicing trawl-lines. Sanford Freeman, Norwichport, Mass.
32693. Splicer. Gloucester, Mass. G. Brown Goode.

Rest for harpoon, &c.

11392. Rest for harpoon and bow and arrow. Aleutian Island. Vincent Colyer.
Used on deck of kyak.

Stretchers for kyak-line.

9836. Stretchers for kyak-line. Eskimos.

Stool.

3978. Stool. R. MacFarlane.
Used by Eskimos to stand on while watching for seal in water.

49. Camp-outfit.

Shelter.

Lodges.
Tents.
Hunting-camps.
Hunters' houses.
Fishing-houses.

Furniture.

Hammocks.
Beds, couches, stretchers, and lounges.
Blankets (rubber and mackinaw), and fur robes.
Fuel.
Apparatus for kindling fire.
Lamps and lanterns.
Tools.

Commissary supplies.

Cooking apparatus, kettles, and stoves.
Commissary supplies.

29295. Portable camp-stove. H. L. Duncklee, Boston, Mass.
25689. Portable camp-stove. " "
Open, showing utensils, viz:
25690. Six tin plates.
25691. Six tin cups.
25692. Six-quart kettle.
25693. Eight-quart kettle.
25694. Stew-pan.

Commissary supplies.

Commissary supplies.

25695. Coffee-pot.
25696. Dipper.
25697. Toast-rack.
25698. Frying-pan.
25699. Bread-pan.
F. & S. 60. Camp-stove and utensils. Property of John A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26673. Coffee-heater. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26713. Camp-stove. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26843. Lehmen's patent folding camp-baker. Scoville & Johnson, Marquette, Mich.

Table-furniture.

Preserved meats, &c.

Canned meats.

24917. Fresh tomato soup. Wm. Underwood & Co., Boston, Mass.
26649. Ox-tail soup (star brand). Portland Packing Company, Portland, Me.
24913. Fresh soup and bouilli. Wm. Underwood & Co., Boston, Mass.
26648. Soup and bouilli (star brand). Portland Packing Company, Portland, Me.
24921. Mock-turtle soup. Wm. Underwood & Co., Boston, Mass.
26641. Cumberland potted sausage (star brand). Portland Packing Company, Portland, Me.
24927. Ox-tail soup. Wm. Underwood & Co., Boston, Mass.
24929. Original deviled ragout. " "
24928. Deviled tongue. " "
24930. Deviled ham. " "
26645. Cumberland roast mutton (star brand). Portland Packing Company, Portland, Me.
24920. Fresh chicken. Wm. Underwood & Co., Boston, Mass.
26640. Cumberland roast chicken (star brand). Portland Packing Company, Portland, Me.
24931. Deviled chicken. Wm. Underwood & Co., Boston, Mass.
26646. Cumberland roast veal (star brand). Portland Packing Company, Portland, Me.
24916. Fresh mutton. Wm. Underwood & Co., Boston, Mass.
26647. Cumberland roast beef (star brand). Portland Packing Company, Portland, Me.
24910. Beef à la mode. Wm. Underwood & Co., Boston, Mass.
24911. Fresh mince-meat. " "
24915. Fresh veal. " "
26639. Champion shell-beans (star brand). Portland Packing Company, [Portland, Me.
26638. Portland blueberries (star brand). " "
22238. Fresh blueberries. Castine Packing Company, Castine, Me.
24919. Fresh beef. Wm. Underwood & Company, Boston, Mass.
26637. Yarmouth sugar-corn. (Patented April 8, May 13 and 20, and August 26, 1862.) (Star brand.) Portland Packing Company, Portland, Me.

Commissary supplies.

Canned meats.

26652. Yarmouth succotash. Made from Yarmouth sugar-corn and champion shell-beans (star brand). Portland Packing Company, Portland, Me.

50. Personal equipments.

Clothing.

Hunting suits.

26655. Canvas hunting-coat. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

26658. Fur vest. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

26659. Buckskin coat. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

26670. Mole-skin pants. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

26671. Corduroy hunter's coat. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

26675. Corduroy hunter's pants. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

26676. Corduroy vest. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

26701. Chamois shirt. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

26594. Hunter's water-proof suit, with patent cartridge-holding vest. Geo. C. Henning, Washington, D. C.

This suit includes:

1. Pantaloons so made that they can be folded close to the legs.
2. Gaiters.
3. Vest with sleeves.
4. Reversible shooting-coat, with seventy-six receptacles for shell or cartridges so arranged as to permit them to be carried either end up, and secured from loss or from injury by rain, by means of the flaps which button over them. The coat is of the same shape before and behind, so that when the hunter exhausts his shells in front he can reverse the coat and have a fresh supply. There are eight pockets opening on the outside of the skirt, and two large game pockets on the inside arranged with openings in the bottoms for ventilation and drip.
5. A double-visored cap.

26710. Hunting-coat. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

Water-proof suits.

26656. Rubber hunting-coat. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

Oil-skin suit.

29543. Cape Ann coats. J. F. Carter, Gloucester, Mass.

29544. Cape Ann pants. " "

Clothing.

Boots, moccasins, leggings.

26015. Fishermen's red cod boots. Jonathan Buck, Harwich, Mass.
26015. Fishermen's red-leather slippers. " "
26014. Fishermen's black boots. " "
25823. Slippers made of sheep-skin, with the wool on the inner surface. Worn by fishermen inside of their boots. A. R. Crittenden, Middletown, Conn.
26671. Boot-packings. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26672. Moccasins. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26708. Rubber boots. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

Hats and caps.

25722. Fisherman's cap, called "Russian cap." E. R. Cook, Provincetown, Mass.
26651. Hunter's rubber cap. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
29542. Series of sou'westers and oil-cloth hats (Cape Ann pattern). J. F. Carter, Gloucester, Mass.

Clothing for the hands.

25788. Pair of mittens. Called "Newfoundland cuffs" by fishermen. Peculiar to Gloucester. A. R. Crittenden, Middletown, Conn.
25790. Mackerel cots. Used on the fingers when taking mackerel by hook and line. Capt. Samuel Elwell, Gloucester, Mass.
25787. Pair of "hand-haulers." Used by fishermen off the Newfoundland Banks. Joseph Parsons, jr., East Gloucester, Mass.
25789. Pair of nippers; peculiar to Gloucester, Mass. Joseph Parsons, East Gloucester, Mass.
25718. Pair of nippers. Used by fishermen to protect the fingers while hauling in trawls. David Conwell.
25717. Pair of nippers. Central Wharf Company, Provincetown, Mass.
26709. Rubber gloves. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

Protection from insects:

Nets for beds and for face.

26700. Mosquito-net. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

Ointments (such as tar and sweet-oil).

Smudges (such as pyrethrum powder).

Shields, breastplates, and defensive armor.

Trappings.

Belts.

26665. Belt for sheath-knife. J. A. Nichols, Syracuse, N. Y.

Trappings.

Cross-belts.

Game-bags.

26667. Game-bag. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
2523. Game-bag. Indians of Northwest coast. U. S. Exploring Expedition.
1473. Game-bag. Comanche Indians. Lieut. D. N. Couch, U. S. A.
2023. Game-bag of knit leather thongs. Dog-rib Indians. Fort Simpson, B. C. R. R. Ross.
2047. Hunting-bag of "babiche." Fort Simpson, H. B. T. R. R. Ross.
2020. Hunting-bag made of "babiche." Dog-rib Indians. Fort Simpson, H. B. T. R. R. Ross.
2551. Hunting-bag of "babiche." Fort Rae Eskimos. Mackenzie's River district. Stratton Jones.
2498. Game-bag. Indians of Northwest coast. U. S. Exploring Expedition.

Wrist-guards.

6927. Wrist-guard. Used in shooting with the bow. Kiowa Indians. Fort Cobb, I. T. E. Palmer.
5520. Wrist-guard. Apache Indians. Arizona. E. Palmer.

Optical instruments, &c.

Snow-goggles.

1651. Snow-blind. Anderson River Eskimos. R. MacFarlane.
10292. Snow-goggles.
1650, 2147, 2157. Snow-goggles. Anderson River Eskimos. R. MacFarlane.
5589. Ingaleet Eskimos. Yukon River, Alaska. W. H. Dall.
5579. Mahlemut Eskimos. Lower Yukon, Alaska. "
10200. Snow-goggles.

Telescopes.

Field-glasses, &c.

Water-telescopes.

26884. Water-telescope. U. S. Fish Commission.
Used in examination of submarine objects.

Compasses.

26682. Hunter's compass. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

Scales.

26681. Scales. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

Game and fish baskets and slings.

Wallets for lines and other tackle.

Medical outfit.

Medicine-chests.
Hunter's and fishermen's flasks.

26684. Flasks. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

Artificial lights.

Lanterns for camp and ship use.[1]
Torches.

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[1] See under *Sight decoys* above, p. 141.

SECTION C.

METHODS OF PREPARATION.

I. PREPARATION AND PRESERVATION OF FOOD.

1. PRESERVATION DURING LIFE (see under E, 3).
2. PRESERVATION OF FRESH MEATS.

Refrigerators.

Ice-boxes and refrigerators.

——. Allegretti iceberg-refrigerator. Allegretti Refrigerator Company, [New York.

——. Allegretti refrigerator show-case. " "

Banta refrigerator.
Banta horizontal refrigerator.

——. Banta refrigerator show-case. Process patented July 1, 1867. G. A. Banta, New York City.

——. Zero refrigerator. Alexander M. Lesley, New York.

Refrigerator-cars.
(Accessory.) The ice-trade:
Ice cutting and handling apparatus.
Methods of manufacturing artificial ice.
Ice-houses.

Other accessories of preservation.

Meat-hooks.
Skewers, &c.
Carving-tools.

3. PRESERVATION BY DRYING.

Sun-drying apparatus.

Beach dryers.
Flake-drying:
Newfoundland flakes.
Massachusetts flakes.

12495. Codfish-flake (with covers). Model. Coast of Maine. E. Skillings, Portland, Me.

Smoke-drying apparatus.

Herring smoke-houses.

12105. Model of smoke-house used in preparation of herring (*Clupea harengus*). Lubec, Me. U. S. Fish Commission.

12105½. Model of smoke-house used in preparation of salmon (*Salmo salar*). Lubec, Me. U. S. Fish Commission.

Halibut smoke-houses.

Sturgeon smoke-houses.

Aboriginal drying-houses.

Methods of drying haliotis, used by the Indians of California.

4. PRESERVATION BY CANNING AND PICKLING.

Salting fish.

Knives (see under B, 2).

Scaling apparatus.

26039. Kelsey & Hosmer's fish-dresser. Sandusky, Ohio. Patented Sept. 15, 1873. Kelsey & Hosmer, Sandusky, Ohio.

Tables, tubs, &c.

Barrels.

25750. Model of D. D. Parmalee's Waukegan fishery. J. W. Milner.
This model shows in miniature all the apparatus employed in cleaning and salting down the lake whitefish.

(Accessory.) Salt:

Specimens of the salts used in preserving fish.

Model of salt-mills used on Cape Cod in former days.

Extensively used in the first half of the present century in obtaining salt by evaporation of sea-water. Their remains are found on Cape Cod and Nantucket.

25706. Model of salt-works. Nantucket, Mass. W. H. Chase, 2d.

Canning meats.

Model of salmon-canning establishment.

Model of sardine-factory.

(Accessory.) Cotton-oil, and its manufacture.

Model of lobster-canning factory.

26583. Model of Johnson & Young's lobster-house. Warren bridge, near Fitchburg depot. Johnson & Young, Boston, Mass.
This model shows the factory with its vats for steaming the lobsters, the wharf, and the derricks used in handling the lobsters. It is accompanied by models of lobster-smack, and of the principal forms of lobster-nets; catalogued elsewhere.

Model of oyster-canning factory.

5. PREPARATION OF BAITS.

Bait-mills, knives, choppers, &c. (see, also, under B, 2 and 3).

26011. Voss' improved bait-mill. (Patented January 17, 1876.) A. Voss, Gloucester, Mass.

Bait-tubs, vats, &c.

II. MANUFACTURE OF TEXTILE, FABRICS, FELTS, AND STUFFINGS.

6. PREPARATION OF WOOL AND HAIR OF MAMMALS.

Preparation of wool cloths.

Washing.
Shearing.
Stapling or assorting.
Scouring.
Combing, carding, and plucking.
Spinning and reeling.
Weaving.
Fulling and teazling.
Cropping.
Pressing.

Weaving worsted cloths.
Felting and the hat manufacture.

Bowing.
Pressing.
Stopping.
Rolling off.
Shaping.

Preparation of curled hair for stuffings.

7. PREPARATION OF WHALEBONE.

Preparation of stuffings.

8. PREPARATION OF FEATHERS.

Preparation of down for stuffings.
Preparation of feather fabrics.
Preparation of "brilliantine."

Preparation of, or flocking for wall-paper, from refuse quills.

Preparation of fibers for manufacture of plush carpets.

9. Preparation of silk of insects.

Preparation of silk of silk-worms.

Boiling the cocoons.
Reeling.
Spinning.
Dyeing.
Weaving.

10. Preparation of soft parts of other invertebrates.

Preparation of silk from byssus of Pinna.

Preparation of sponge stuffing.

III. PREPARATION OF THE SKIN AND ITS APPENDAGES.

11. Currying of leather.

Processes of currying.

Dipping.
Graining.
Scraping.
Dressing.

Implements employed by curriers.

"Head-knives."
"Pommels."
"Stretching-irons."
"Round-knives."
"Cleaners."
"Maces."
"Horses" or trestles.
"Dressers."
"Treading-hurdles."

Eskimo and Indian currying methods and implements.

Methods of dressing gut and sinew.

12. LEATHER DRESSING.

Processes of tanning leather.

Soaking.
Liming.
Tanning.

Processes of tawing or oil-dressing leather.

Soaking.
Liming.
Oiling.

Apparatus of leather-dressing, recent and aboriginal.

13. FUR-DRESSING.

Processes of fur-dressing.

Currying. (See under 12.)
Scouring.
Tanning.
Lustering.
Plucking and dyeing.

14. FEATHER-DRESSING.

Method of preparing ornamental feathers.

Scouring.
Bleaching.
Washing.
Azuring.
Sulphuring.
Scraping.
Dyeing.

(Art of plumagery.)

15. MANUFACTURE OF QUILL ARTICLES.

Manufacture of quills for pens.

Sand-bath drying and steaming.
Polishing.
Dyeing.
Shaping.

Manufacture of tooth-picks.

Manufacture of floats and other articles.

Manufacture of quill brush-bristles.

16. HAIR AND WOOL WORK.

VI. PREPARATION OF HARD TISSUES.

17. Ivory cutting and carving.

Manufacture of handles, trinkets, billiard-balls, &c.

Turning and sawing.
Polishing.
Bleaching.

Manufacture of organ and piano keys.

Sawing.
Strip-sawing.
Polishing.
Bleaching, &c.

Other processes.

18. Preparation of horn and hoof.[1]

Steaming.[1]

Pressing.[1]

19. Preparation of whalebone.[1]

Cutting and other processes.[1]

Manufacture of whip-makers' stock and whips.

Manufacture of umbrella-makers' bone.

Manufacture of ribbon-weavers' bone.

Manufacture of hat and bonnet makers' bone.

Manufacture of suspender-makers' bone.

Manufacture of stock-makers' bone.

Manufacture of dress and stay makers' bone.

Manufacture of billiard-table cushions.

Manufacture of surgical instruments.

Manufacture of whalebone brushes.

Manufacture of rosettes, woven work, and trinkets.

[1] These processes are illustrated in part by the specimens, showing the horn, whalebone, and tortoise-shell, in various stages of preparation, exhibited in Section D.

Other whalebone manufactures.

20. PREPARATION OF TORTOISE-SHELL.[1]

21. PREPARATION OF FISH-SCALE WORK.

22. PREPARATION OF NACRE.

23. PREPARATION OF CORAL.

24. PREPARATION OF OTHER HARD TISSUES.

V. OILS AND GELATINES.

25. EXTRACTION OF WHALE-OIL (WITH MODELS OF TRY-WORKS, CLARIFYING-VATS, ETC.).

Preparation of body-oil.

Cutting in and stowing
Leaning and mincing.
Trying.
Bailing.
Cooling.
Barreling.
Refining.

Preparation of head-oil.

Preparation of spermaceti.

Instruments and appliances of rendering whale-oil.

Boarding-knives.[2]
Leaning-knives.[2]
Mincing-horse and mincing-knives.
Mincing-tub.
Mincing-machine.
Blubber-fork.[3]

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[1] These processes are illustrated in part by the specimens, showing the horn, whalebone, and tortoise-shell, in various stages of preparation, exhibited in Section D.

[2] Arranged with the knives.

[3] Arranged with the hooks.

Instruments and appliances of rendering whale-oil.

Try-pots.

25013. Model of whaler's try-works. Capt. L. W. Howland, New Bedford, Mass.

This model is accompanied by miniature models of all the implements used in trying out the blubber, viz:

a. Fire-pike.
b. Stirring-pole.
c. Scrap-hopper.
d. Skimmer.
e. Bailer.
f. Cooler.
g. Deck-pot.
h. Casks.

26. EXTRACTION OF OTHER MAMMAL OILS.

27. EXTRACTION OF BIRD AND REPTILE OILS.

28. EXTRACTION OF FISH-OILS (WITH MODELS OF BOILERS, PRESSES, CLARIFYING-VATS, ETC.).

26899. Model of menhaden oil factory. Owned by Jos. Church & Co. Joseph Lawler, Bristol, Me.

The factory is the most elaborate of the sixty or more on the coast of New England and the Middle States, and is 160 feet in length by 40 in width.

29. EXTRACTION OF GLUE, GELATINE, AND ISINGLASS.

VI. DRUGS, PERFUMES, AND CHEMICAL PRODUCTS.

30. MANUFACTURE OF PERFUMES.

31. MANUFACTURE OF IVORY-BLACK.

32. MANUFACTURE OF PRUSSIATES.

33. MANUFACTURE OF MUREXIDES.

34. PREPARATION OF COCHINEAL COLORS.

35. MANUFACTURE OF INKS FROM ANIMAL SUBSTANCES.

36. PREPARATION OF ALBUMEN.

37. MANUFACTURE OF PEPSIN.

38. MANUFACTURE OF PHOSPHORUS.

39. MANUFACTURE OF SAL AMMONIAC.

40. MANUFACTURE OF AMMONIA.

41. MANUFACTURE OF ALBUMEN PREPARATIONS.

42. MANUFACTURE OF PROPYLAMINE.

43. MANUFACTURE OF FORMIC ACID.

44. MANUFACTURE OF CARBAZOTATES.

VII. MANUFACTURE OF FERTILIZERS.

45. Preparation of guano.

Model of fish-guano works.

Grinders and pulverizers.
Mixers.

25822. Model of guano-mixer. Patented April 27, 1867. Poole and Hunt, Baltimore, Md.

This mixer is employed in the fish-guano works for the purpose of thoroughly mixing the fish-scrap with the mineral phosphates and sulphuric acid.

Guano in its various stages, with its ingredients, South Carolina phosphates, Navassa phosphates, scrap (crude and dried), sulphuric acid, kainite, screened and unscreened guano, and sea-weed used in preparation: a full series of these is exhibited in the case of Guanos.

VIII. LIMES.

46. Burning of lime.

Models of kilns for burning shells.

IX. PRESERVATION OF THE ANIMAL FOR SCIENTIFIC USES.

47. Apparatus for making and preserving alcoholic specimens.

Tanks and jars.

Agassiz collecting-tank.
Army collecting-tank.
Museum storage-tank, Agassiz model.
Anatomical jars.
Self-sealing jars used in collecting.
Vials.

Syringes for injecting.

Inflatable bags.

Preservative mixtures.

Alcohol.
Glycerine.

Preservative mixtures.

Carbolic acid.
Chloral hydrate.
Picric acid.
Osmic acid.

Labels.

Metallic labels.
Parchment labels.
Indelible ink, pencils, &c.

48. APPARATUS FOR PRESERVING AND MAKING SKELETONS.

Preparation of the bones.

Macerating-vats.
Boiling-vats.
Cleaning and bleaching preparation.

Mounting of the bones.

Scraping-tools.
Articulating-tools.

49. APPARATUS FOR MAKING CASTS. MODELING.

Materials.

Clays.
Plasters.
Glues.
Papier-maché and *carton-pierre.*
Gelatine.
Paraffine.
Collodion.

This apparatus and material is in constant use by the assistants in the National Museum and the Fish Commission. It is thought scarcely necessary to exhibit it.

Frames and modeling tools.

Molds:

Of plaster.
Of gelatine.
Of paper.
Of paraffine.

50. APPARATUS AND METHODS OF MAKING AND MOUNTING SKINS. TAXIDERMY.

Tools.

Flaying-tools.
Scraping-tools.
Taxidermists' tools for stuffing:
  Forceps.
  Pliers.

Preservatives and insect-powders.

Arsenic and arsenical soap.
Corrosive sublimate.
Salt, alum, &c.
Persian insect-powder.
Tobacco, snuff, used as preservatives.

Frames, &c.

Wooden frames.
Wire frames.
Plaster model-bodies.

51. (ACCESSORY.) PHOTOGRAPHIC AND OTHER DELINEATING APPARATUS.

Photographic apparatus.

Lenses.
Cameras and fittings.
Camera tripods and stands, with model.
Fish Commission stands.

——. Model of Fish Commission camera-stand. U. S. Fish Commission. This stand is employed in taking photographs of large fishes. It enabling the photographer to operate his camera vertically.

Plates, and their results:
  Wet plates.
  Dry plates.
  Dark closets.

Camera-obscuras.

Mechanical delineators.

Methods of heliotyping and engraving illustrations.

SECTION D.

ANIMAL PRODUCTS AND THEIR APPLICATIONS.

I. FOODS.

1. Foods in a fresh condition.

This section includes specimens of the marketable animals in a fresh condition in refrigerators.

The following species of fish were exhibited in the Allegretti and Banta refrigerators in the Government building from May 10 to November 10, by Mr. E. G. Blackford, of New York City.

Fishes (eastern coast):

Rabbit-fish (*Tetrodon laevigatus*).
Bur-fish (*Chilomycterus geometricus*).
File-fish (*Balistes capriscus*).
Long-tailed file-fish (*Alutera cuspicauda*).
Orange file-fish (*Ceratacanthus aurantiacus*).
American sole (*Achirus lineatus*).
Flat-fish (*Pseudopleuronectes americanus*).
Flounder (*Chænopsetta ocellaris*).
Halibut (*Hippoglossus vulgaris*).
Pollack (*Pollachius carbonarius*).
Cod (*Gadus morrhua*).
Tom-cod or frost-fish (*Microgadus tomcodus*).
Haddock (*Melanogrammus æglefinus*).
Hake (*Phycis chuss*).
Striped sea-robin (*Prionotus evolans*).
Broad-fingered sea-robin (*Prionotus carolinus*).
Sea-raven (*Hemitripterus americanus*).
Wolf-fish (*Anarrhichas lupus*).
Tautog, or black-fish (*Tautoga onitis*), weight 22½ pounds.
Chogset or cunner (*Tautogolabrus adspersus*).
Parrot-fish (*Pseudoscarus* sp.).
Sergeant-major (*Glyphidodon saxatilis*).
Lump-fish (*Cyclopterus lumpus*).
Mackerel (*Scomber scombrus*).

Fishes (eastern coast):

Bonito (*Sarda pelamys*).
Spanish mackerel (*Cybium maculatum*).
Cero (*Cybium caballa*).
Striped cero (*Cybium regale*).
Crevalle (*Carangus hippos* and *Paratractus pisquetos*).
Pompano (*Trachynotus carolinus*).
Big-eyed scad (*Trachurops crumenophthalmus*).
South Carolina rudder-fish (*Seriola fasciata*).
Silver-fish (*Argyriosus vomer*, &c.).
Thread-fish (*Blepharis crinitus*).
Dolphin (*Coryphæna Sueuri* and *C. punctulata*).
Black rudder-fish (*Palinurichthys perciformis*).
Butter-fish (*Poronotus triacanthus*).
Short harvest-fish (*Peprilus Gardenii*).
Squirrel (*Holocentrum sogo*).
Squeteague (*Cynoscion regalis*).
Spotted squeteague or weak-fish (*Cynoscion carolinensis*).
Drum (*Pogonias chromis*).
Spot (*Liostomus obliquus*).
Red-fish, or spotted bass (*Sciaenops ocellatus*).
King-fish (*Menticirrus nebulosus*).
Croaker (*Micropogon undulatus*).
Sheeps-head (*Archosargus probatocephalus*).
Scuppaug, or porgy (*Stenotomus argyrops*).
Grunts (*Hæmylum arcuatum*, &c.)..
Red snapper (*Lutjanus Blackfordii*).
Grouper (*Epinephelus striatus*, *E. apua*, &c.).
Sea bass (*Centropristis atrarius*).
Striped bass or rock fish (*Roccus lineatus*).
White perch (*Morone americana*).
Moon-fish (*Parephippus quadratus*).
Triple-tail (*Lobotes surinamensis*).
Bluefish (*Pomatomus saltatrix*).
Cobia (*Elacate canadus*).
Sucker-fish (*Leptecheneis naucrateoides*).
Striped mullet (*Mugil lineatus*).
Silver gar-fish (*Belone longirostris*).
Skipper (*Scomberesox scutellatus*).
Salmon (*Salmo salar*).
Tarpum (*Megalops thrissoides*).
Menhaden (*Brevoortia tyrannus*).
Shad (*Alosa sapidissima*).
Alewife, or gaspereau (*Pomolobus pseudoharengus*).
Tailor herring (*Pomolobus mediocris*).
Herring (*Clupea harengus*).

Fishes (eastern coast):

Mud shad (*Dorosoma Cepedianum*).
Sea cat-fish (*Aelurichthys marinus*).
Eel (*Anguilla bostoniensis*).
Sturgeon (*Acipenser oxyrhynchus* and *A. brevirostris*).
Spoonbill (*Polyodon folium*).
Ray, or skate (*Raia* sp.).
Spotted-fin shark (*Isogomphodon maculipinnis*).
Dog-fish (*Mustelus lævis*).

Fishes (fresh waters):

Burbot, or lawyer (*Lota maculosa*).
Fresh-water drum (*Haploidonotus grunniens*).
Small-mouthed black bass (*Micropterus salmoides*).
Large-mouthed black bass (*Micropterus pallidus*).
Rock bass (*Ambloplites rupestris*).
Sun-fish (*Pomotis aureus*).
Yellow perch (*Perca flavescens*).
Yellow pike-perch (*Stizostedium americanum*).
White bass, or striped bass (*Roccus chrysops*).
Lake pike (*Esox lucius*).
Masquallonge (*Esox nobilior*).
Pickerel (*Esox reticulatus*).
Brook trout (of eastern slope), (*Salvelmus fontinalis*).
Lake trout (*Salmo confinis*).
Salmon trout, or Mackinaw trout (*Cristivomer namaycush*).
Atlantic salmon (*Salmo salar*).
Sebago salmon (*Salmo salar* var. *sebago*).
White-fish (*Coregonus albus*).
Lake herring (*Argyrosomus harengus* and *A. clupeiformis*).
Michigan grayling (*Thymallus tricolor*).
Moon-eye (*Hyodon tergisus*).
Suckers (*Catostomus teres* and *Ptychostomus aureolus*).
Buffalo fish (*Bubalichthys bubalus*).
Shiner (*Stilbe americana*).
Catfishes (*Amiurus catus*, *A. nigricans*, &c.).

Fishes (western coast):

Salmon (*Salmo quinnat*).
Mussels.
Clams.
Crabs.
Lobsters.
Squid.

2. Foods: dried and smoked.

Mammal preparations.

Jerked bear-meat.

Jerked seal and walrus meat (Indian).

11435. Dried (jerked) flesh of harbor seal (*Phoca vitulina*). Prepared by the Passamaquoddy Indians. Eastport, Me. E. Palmer.

Jerked and smoked buffalo-meat.

14281. Dried (jerked) flesh of buffalo (*Bison americanus*), as prepared for hunters' use. Wyoming. F. V. Hayden, U. S. Geologist.

10917. Dried (jerked) flesh of buffalo (*Bison americanus*). Prepared by Sioux Indians. Army Medical Museum.

Dried and smoked beef.

Dried and smoked venison.

Hams of various kinds.

Jerked porpoise-meat (Indian).

11433. Dried (jerked) flesh of harbor porpoise (*Phocaena brachycion*). Prepared by the Passamaquoddy Indians of Eastern Maine. Eastport, Me. E. Palmer.

Jerked squirrels and other small mammals.

Pemmican.

12238. Pemmican of dried flesh of buffalo (*Bison americanus*), with buffalo-skin case. Prepared for hunters' use. Western Plains. Army Medical Museum.

Meat-biscuit, desiccated meat, meat extract (*extractum carnis*), desiccated and condensed milk, &c.

29524. Valentine's preparation of meat juice. M. L. Valentine, Richmond, Va.

29525. Valentine's meat juice and glycerine. (Meat juice 1 part, glycerine 3 parts.)

29358. Condensed milk. The Gail Borden Eagle brand (made in 1876). New York Condensed Milk Company, New York.

29360. Borden's pure cocoa (in combination with refined sugar and Borden's condensed milk). New York Condensed Milk Company, New York.

29359. Borden's meat-biscuit (made in 1851). Composed of pure juce or extract of beef combined with wheat-flour. New York Condensed Milk Company.

29361. Borden's extract of beef (made in 1876). Prepared by the Borden Meat Preserving Company, Colorado County, Texas. Concentrated *in vacuo*. New York Condensed Milk Company.

(Borden's extract of beef consists of the juices of lean meat concentrated *in vacuo* at a low degree of heat, by which process it is claimed the burnt taste and smell, objected to in other beef extracts, are avoided.)

4915. Condensed raw beef (pulverized). Prepared by the National Preserving Company, Baltimore.

Mammal preparations.

Sausages.

Cheese.

See in exhibition of Agricultural Department.

Bird preparations.

Jerked birds (Indian).

Reptile preparations.

Dried lizards (Indian).

Fish preparations.

Smoked halibut.

Dried cod, haddock, hake, &c.

26750. Alden's vapor-cured, snow-flaked, fresh codfish. E. G. Blackford.

Dried and smoked mullet and roes.

Dried and smoked garfish, flying-fish, &c.

Smoked herring, alewives, &c., and their roes.

12130. Smoked No. 1 herrings (*Clupea harengus*). Eastport, Me. D. T. Odell.

12131. Smoked "Magdalena" herrings (*Clupea harengus*). Eastport, Me. D. T. Odell.

12129. Smoked "scaled" herrings (*Clupea harengus*). Eastport, Me. D. T. Odell.

26552-3-4. Smoked herring (*Clupea harengus*). Eastport, Me. Griffin Bros.

Smoked salmon, oulachan, white-fish, smelt, &c., and their roes.

12121. Smoked white-fish (*Coregonus albus*). Lake Erie. Schacht & Bros., Sandusky, Ohio.

11608. Smoked flesh of the quinnat salmon (*Salmo quinnat*). Prepared by the McCloud River Indians. Shasta County, California. Livingston Stone.

12122. Smoked sturgeon (*Acipenser rubicundus*). Lake Erie. Schacht & Bros., Sandusky, Ohio.

19646. Dried flesh of trout (*Salmo*, sp.). Used as food by the Ahgy Pi-Ute Indians of Walker Lake, Nevada. Stephen Powers.

19353. Dried eggs of quinnat salmon (*Salmo quinnat*). Prepared by the McCloud River Indians. Shasta, Cal. Livingston Stone.

11049. Dried eggs of quinnat salmon (*Salmo quinnat*). Prepared for food by the Bannack Indians.

21716. Flour made from flesh of quinnat salmon (*Salmo quinnat*) by the McCloud River Indians of California. Livingston Stone.

21712. Basket of dried salmon (*Salmo quinnat*). Prepared for food by the McCloud River Indians. Shasta County, California. Livingston Stone.

25284. Dried flesh of salmon (*Salmo*, sp.). Prepared by the Sitka Indians of Alaska. Alaska. J. G. Swan.

12132. Dried flesh of the quinnat salmon (*Salmo quinnat*). Used as food by the McCloud River Indians. California. Livingston Stone.

Fish preparations.

13752. Dried eggs of quinnat salmon (*Salmo quinnat*). Used as food by the McCloud River Indians. California. Shasta County, California. Livingston Stone.

21187. Eggs of "herring" (sp. incog.). Used as food by Sitka Indians. Collected by them upon branches of hemlock (*Abies Mertensiana*), planted in shallow water, upon the spawning grounds of the fish. Sitka, Alaska. J. G. Swan.

Smoked sturgeon.

Veziga, prepared from the notochord of sturgeon.

Insects.

Dried grasshoppers (Indian).

25314. Grasshoppers. Dried for food by the Indians of Southern California. E. Palmer.

Worms.

Dried worms (Indian).

Mollusk preparations.

Dried abalones (*Haliotis*) prepared by the California Chinese.

Dried siphons of *Schizothœrus* prepared by the Indians of the Northwest coast.

Dried slugs (*Limax*, &c.), used by Indians.

Radiate preparations.

(Dried holothurians, "bêches de mer," used by Chinese.)

Protozoans.

("Mountain meal," a kind of infusorial earth, mixed with flour, and used as food in Lapland and China.)

3. Foods: salted, canned, and pickled.

Mammal preparations.

Salted buffalo-meat.

Salted beef.[1]

Salted deer, reindeer, elk.

Salted tongues of beef, buffalo, deer, horse.[1]

Salted pork.[1]

Canned milk of the various brands.

[1] See above, p. 163.

Bird preparations.

Canned turkey.
Canned meats.

24918. Fresh turkey (*Meleagris gallopavo*). Wm. Underwood & Co., Boston, [Mass.
24932. Deviled turkey (*Meleagris gallopavo*). " "
26644. Cumberland roast turkey (star brand). Portland Packing Company, Portland, Me.

Canned chicken.
Canned goose.

Reptile preparations.

Salted and canned turtles and turtle soup.
Canned frogs.

26751. Alden fresh green turtle. Prepared by Alden Sea Food Company. Sold by Lynn Manufacturing Company, New York. Presented by E. G. Blackford, New York.

Fish preparations.

Salted halibut, halibut fins, &c.

25271. Preserved fresh halibut (*Hippoglossus vulgaris*). Wm. Underwood & Co., Boston, Mass.

Salted cod, cod's tongues, sounds, and roe.

24923. Fresh codfish (*Gadus morhua*). Wm. Underwood & Co., Boston, Mass.
25273. Fresh haddock (*Melanogrammus æglefinus*). " "

Salted mackerel.
Salted Spanish mackerel.

26650. Fresh Seguin mackerel (star brand). Portland Packing Company, Portland, Me.
25855–60. Canned mackerel (*Scomber scombrus*). Kemp, Day & Co., New York.
24922. Fresh mackerel (*Scomber scombrus*). Wm. Underwood & Co., Boston, Mass.

Salted bluefish.
Salted pompano.
Salted sword-fish.
Salted mullets.
Salted salmon.

24924. Fresh salmon (*Salmo salar*). Wm. Underwood & Co., Boston, Mass.
26557. Pickled salmon (*Salmo*).
26755. Fresh Columbia River salmon. Brookfield, Columbia River, W. T. J. G. Megler & Co.
——. Canned salmon. A. Booth & Co., Chicago, Ill.

Fish preparations.

Salted salmon.

26756. Fresh Columbia River salmon. Brookfield, W. T. J. G. Megler & Co.
26757. Fresh Columbia River salmon. Brookfield, Columbia River, W. T. J. G. Megler & Co.
26803. Spring salmon bellies (salted). Oregon Packing Company, Portland, Oreg.
26747. Cook's Columbia River fresh salmon. Oregon Packing Company.

Canned menhaden, in oil, "American sardines."

16609. "American sardines." Prepared "à l'huile" from the menhaden (*Brevoortia tyrannus*). American Sardine Company, New York.
16702. Cornish sardines (à l'huile), first quality. Prepared by Fox & Fryer, Falmouth and Nevagissy, Cornwall, from the pilchard (*Clupea pilchardus*).
16680. "American boneless sardines." Prepared in olive oil from the menhaden (*Brevoortia tyrannus*). Process patented May 21, 1872. American Sardine Company, New York.
15516. "Shadines." Prepared from the menhaden (*Brevoortia tyrannus*). Port Monmouth Fishery, New York. Hooper & Coit, New York.

(Spiced lampreys) used in Europe.

Anchovy-sauce and "essence of anchovies."

Canned menhaden, in oil, "American club-fish."

Spiced menhaden, "ocean trout."

——. Ocean trout. Hoope & Coit, Port Monmouth, N. J.

Salted herring.

26748. Quoddy River herring (salted). Griffin Bros., Eastport, Me. Presented by E. G. Blackford, New York.

Salted anchovies.

26565–68 } "Krauter anchovies, Christiania." New York. Eagle Preserved
26571–72 } Fish Company.
26559. Anchovies.

Canned herring, in oil, "Russian sardines."

26562. Russian sardines.
26563–26570. "Russische Sardinen." Adler brand. Prima qualitat. "Reval." New York. Eagle Preserved Fish Company.

Caviare, prepared from roe of the various sturgeons.

12129. Caviare. Prepared from the eggs of the lake sturgeon (*Acipenser rubicundus*). Lake Erie. Schacht & Bros., Sandusky, Ohio.
26558. Caviare.
26635. American caviare. Max Ams, New York.
26634. Prime Russian caviare. (Patented Nov. 9, 1875.) H. Dittman, Hamburg. Max Ams, New York.

Fish preparations.

Pickled fish preparations.

26555. Pickled eels (*Anguilla bostoniensis*).
26633. American eels (pickled eels). Max Ams, New York.
26636. "Hamburger aale" (cans) (pickled eels). Max Ams, New York.
26630. "Hamburger aale" (pickled eels in jelly). Max Ams, New York.
26631. "Hamburger aale" (whole eels rolled and pickled with olives, capers, and mushrooms). Max Ams, New York.
26629. Hamburger aale (boxes). Max Ams, New York.
26632. Hamburger aale. G. Dittman, Hamburg. Max Ams, New York.

Extract of fish.

26749. Extract of fish. Made from the juices of the flesh of fishes (menhaden). S. L. Goodale, Saco, Me.

Preparations of mollusks.

Canned clams.
Canned Little Neck clams.
Canned scollops.
Cockles (*Cardium edule*), used in Europe as pickles and catsup.
See supplementary catalogue of Invertebrates.

4. GELATINES.

Mammal gelatines (see, also, under 24)

Gelatines made from tanners refuse and from sinews.
Gelatines made from feet and hoofs.
Gelatines made from bone and ivory shavings.

Bird gelatines.

(Nests of esculent swallows (*Calocalia esculenta*, *C. fuciphaga*, *C. indifica*, &c.), exported from Indian Archipelago to China.)

Fish gelatines or isinglass (see, also, under 24).

Insect gelatine.

Gelatine from cocoons of silk-worms.

5. BAITS AND FOODS FOR ANIMALS.

Prepared baits. (See under B, 45.)

Food for domesticated animals.

Oil-factory scraps.
Fish-scraps.
Cuttle-fish bone (see under 18).

II. CLOTHING.

6. FURS (embracing the furs in their rough state (peltries), and in the various stages of preparation; also the manufactured articles, such as robes, rugs, cloaks, sacks, tippets, cuffs, muffs, hats, caps, gloves, trimmings, and linings).

Mammal furs.

Puma (*Felis concolor*), used for carriage-robes, rugs, &c.

H. 67. Missouri. C. A. Herpich & Co.

Ocelot (*Felis pardalis*) used for rugs.

12509. Texas. Smithsonian Institution.

Jaguar (*Felis onca*), used for rugs.

——. Texas. Smithsonian Institution.

Cat (*Felis domestica*), used for robes and philosophical apparatus:
Black cat.
White cat.
Maltese cat.
Tortoise-shell cat.

H. 64. Natural. United States. C. A. Herpich & Co.
H. 65. Dyed brown. United States. C. A. Herpich & Co.

Canada lynx (*Lynx canadensis*), used for rugs and trimmings and dyed muffs, boas, &c.

24754. Labrador. G. R. Renfrew & Co., Quebec.

Bay lynx (*Lynx rufus*), used for rugs, and, when dyed, muffs and boas.

H. 61. Natural. Minnesota. C. A. Herpich & Co.
H. 62. Dyed brown. Kansas. "
H. 63. Dyed black. " "
H. 59. Dyed black. "
H. 60. Dyed brown. "

Eskimo dog (*Canis* sp.), used for rugs, &c.

24756. Labrador. G. R. Renfrew & Co., Quebec.

Wolf (*Canis lupus*), used for lining rugs and robes.

12508. Black variety.
H. 75. Gray variety. Kansas. C. A. Herpich & Co.
24753. Labrador. G. R. Renfrew & Co., Quebec.

Mammal furs.

Coyote or prairie-wolf (*Canis latrans*), used for rugs and robes.

H. 75. Colorado. C. A. Herpich & Co.
1014. Smithsonian Institution.

Red fox (*Vulpes fulvus*) used for robes.

24757. Labrador. G. R. Renfrew & Co., Quebec.
H. 34. Connecticut. C. A. Herpich & Co.
H. 35. Indiana. "
H. 3. Missouri. "

Silver fox (*Vulpes alopex*, var. *argentatus*), used for muffs and trimmings.

24759. Labrador. G. R. Renfrew & Co., Quebec.

Cross fox (*Vulpes alopex*, var. *decussatus*), used for robes and trimmings.

24758. Labrador. G. R. Renfrew & Co., Quebec.
H. 30. Montana. C. A. Herpich & Co.

Arctic fox (*Vulpes lagopus*).

24760. Labrador. G. R. Renfrew & Co., Quebec.
H. 29. White Arctic. C. A. Herpich & Co.
H. 28. Blue Labrador. "

Kit fox (*Vulpes velox*) used for robes, muffs, trimmings.

H. 37. Nebraska. C. A. Herpich & Co.

Gray fox (*Urocyon virginianus*), used for robes, rugs, and linings.

H. 32. Michigan. C. A. Herpich & Co.
H. 33. North Corolina. "

American or Hudson's Bay sable (*Mustela americana*), used for cloaks, muffs, cuffs, boas, linings, &c.

4393. Summer Arctic coast. B. R. Ross.
10176. Alaska. Lieut. F. M. Ring.
4389. Arctic coast, B. R. Ross.
460. Fort Boise, M. T. Dr. Geo. Suckley.
24764. Orange. Labrador. G. R. Renfrew & Co., Quebec.
24763. Silver. " " "
24762. Black. " " "
H. 25. Labrador. Smithsonian Institution.
H. 25. N. W. coast. " "
H. 26. Lake Superior. " "
H. 27. Maine. " "

Fisher or pekan (*Mustela Pennanti*) used for linings; tails used for trimmings.

3230. Fort Crook, Oreg. Capt. Gardiner.
1008. Fort Dalles, Oreg. Dr. Geo. Suckley.
2000. Steilacoom, Wash. "
1009. Fort Dalles, Oregon. "
24761. Black. Labrador. G. R. Renfrew & Co., Quebec.

Mammal furs.

Ermine or weasal (*Putorius erminea*) of northern hemisphere, used for cloaks, linings, &c.

24765. Labrador. G. R. Renfrew & Co., Quebec.
H. 39. (5 specimens.) United States. C. A. Herpich & Co.

Mink (*Putorius vison*), used for cloaks and muffs.

4395. Arctic coast. B. R. Ross.
350. California. Lt. Trowbridge.
3568. Puget Sound. Dr. Kennerly.
2387. Cape Flattery, Wash. Dr. Geo. Suckley.
24766. Brown. Labrador. G. R. Renfrew & Co., Quebec.
H. 18. New York. C. A. Herpich & Co.
H. 19. Minnesota. "
H. 20. Ohio. "
H. 22. Maine. "
H. 22. Missouri. "
H. 23. Florida. "

Wolverine (*Gulo luscus*), used for muffs, robes, linings.

24767. Labrador. G. R. Renfrew & Co., Quebec.
11339. Filmore, Utah. Lieut. Geo. M. Wheeler.
4379. Fort Simpson, H. B. T. Robt. Kennicott.

American badger (*Taxidea americana*), used for muffs and rugs.

26609. Southern Utah. U. S. Engineer Corps.
H. 70. United States. C. A. Herpich & Co.

Skunk, Alaska sable (*Mephitis mephitica*), used for muffs, boas, &c.

81. Washington, D. C. S. F. Baird.
H. 7. Black. Ohio. C. A. Herpich & Co.
H. 8. Half-striped. Pennsylvania. C. A. Herpich & Co.
H. 9. Striped. Connecticut. "
H. 10. White. Missouri. "

Striped skunk (*Spilogale zorilla*).

11136. Marsh Valley. Dr. F. V. Hayden.

Otter (*Lutra canadensis*), with specimens of the plucked and dyed fur, used for muffs, trimmings, &c.

2803. White River. Puget Sound. Dr. George Suckley.
24768. Labrador. G. R. Renfrew & Co., Quebec.
25752. Dressed by G. C. Treadwell & Co., Albany, N. Y.
25753. " "
25763. " "
H. 41. Natural. Maine. C. A. Herpich & Co.
H. 42. Natural. Plucked. Canada. C. A. Herpich & Co.
H. 43. Natural. Plucked and dyed. New York. C. A. Herpich & Co.

Mammal furs.

Sea otter (*Enhydra marina*), used for muffs, gloves, collars, cuffs, trimmings.

12262. St. Paul's Island, Alaska. H. W. Elliott.
12265. " " "
12263. " " "
H. 44. California. C. A. Herpich & Co.
H. 45. Silver tipped. California. C. A. Herpich & Co.

Black bear (*Ursus americanus*), used for caps, rugs, muffs, robes, &c.

24769. Labrador. G. R. Renfrew & Co., Quebec.
24770. " " "
H. 75. Minnesota.
H. 76. Kansas.
H. 77. West Virginia.
12510. White bear (*Thalarctos maritimus*), used for rugs, robes; extensively by the Eskimos.
19904–5. Grizzly bear (*Ursus horribilis*), used for rugs, robes, trimmings.
12507. Raccoon (*Procyon lotor*), used for hats, linings:
H. 1. Natural. Northern New York. C. A. Herpich & Co.
H. 2. Natural. Ohio. "
H. 3. Natural. Virginia. "
H. 4. Natural, plucked. Wisconsin. "
H. 5. Dyed black. Michigan. "
H. 6. Dyed black and silver pointed. Michigan. C. A. Herpich & Co.

Fur seal (*Callirhinus ursinus*) used for cloaks, hats, gloves, muffs, linings, trimmings, &c.

12513–14–15–16–17–18. St. Paul's Island, Alaska. H. W. Elliott.
9526. Unplucked. Hutchinson, Kohl & Co., San Francisco, Cal.
9527. Unplucked. Alaska. Hutchinson, Kohl & Co.
25757. Unplucked. Prybilov Islands, Alaska. Hutchinson, Kohl & Co.
25758. London dye. Alaska. C. A. Herpich & Co.
H. 93. " " "
22233. Unplucked. Alaska. G. C. Treadwell & Co., Albany, N. Y.
22234. Plucked. South Sea. " "
26310. Unplucked pelt of fur seal. Alaska.
26311. Plucked " " "
26312. Plucked and dressed pelt of fur seal. Alaska.
26313. Plucked and dyed pelt of fur seal. Alaska. Alaska Commercial Company.

Antarctic fur-seal (*Arctocephalus aucklandicus*), &c.

25762. Dressed by G. C. Treadwell & Co. Islos de Diego Ramires.
25761. " " South Georgia Islands.
25760. " " "
25759. " " Staten Land, South Atlantic.
25756. " " South Shetland Islands.
25755. " " "
25754. " " "
26804–5–6–7. Deposited by Duryea & Hallet, Rahway, N. J.

Mammal furs.

Banded seal (*Histriophoca equestris*), used by Eskimos as fur.

7580. (Bag). Cape Romanzoff. W. H. Dall.

Square flipper seal (*Erignathus barbatus*).

12422. Labrador. Governor of Newfoundland.

Pacific hair seal (*Phoca Richardi?*).

H. 89. White coat. Pacific. C. A. Herpich & Co.
H. 90. White coat, silver pointed. Pacific. C. A. Herpich & Co.

Hood or bladder-nose seal (*Cystophora cristata*).

12424. Young. Labrador. Governor of Newfoundland.
12425. Bedlamer (1 year old). Labrador. Governor of Newfoundland.
12423. Labrador. Governor of Newfoundland.

Harp seal (*Pagophilus grœnlandicus*), with specimens of the white fur of the unborn cub and the blue fur of the young.

11828. Unborn. Newfoundland. Michael Carroll.
12427. Labrador. Governor of Newfoundland.
12421. Young. Labrador. Governor of Newfoundland.
12426. Bedlamer. " " "
13134. Sack made from white fur. Greenland. S. F. Baird.

Hair seal (*Phoca vitulina*), used for coats, caps, linings for shoes.

24771. Labrador. G. R. Renfrew & Co., Quebec.
H. 91. Dyed black. Halifax. C. A. Herpich & Co.
H. 92. Dyed brown. " "

Bison, or buffalo (*Bison americanus*) used for rugs and robes.

H. 82. Full furred winter.
H. 83. Fall robe. Montana. C. A. Herpich & Co.
H. 84. Summer robe. " "
H. 85. Indian painted. " "
H. 86. Yearling calf. " "
H. 87. Medium calf. " "
H. 88. Small calf. " "

Musk ox (*Ovibos moschatus*) used for robes, rugs, and trimmings.

12520. Hudson's Bay Territory.
12519. Calf. Hudson's Bay Territory.

Mountain sheep (*Ovis montana*).

H. 80. Montana. C. A. Herpich & Co.

Antelope (*Antilocapra americana*).

H. 81. Indian Territory. C. A. Herpich & Co.

Mammal furs

Elk (*Cervus canadensis*), used for rugs and robes.

H. 78. Montana. C. A. Herpich & Co.

Virginia deer (*Cariacus virginianus*).

12512. Virginia deer, used for trimmings and robes.

Black-tailed deer (*Cariacus columbianus*), used for robes and rugs.

11604–11605. Prepared by McCloud River Indians, California. Livingston Stone.
3565. Puget Sound. Dr. Kennerly.

Mule deer (*Cariacus macrotis*), used for trimmings, robes.

H. 99. Montana. C. A. Herpich & Co.

Woodland caribou (*Tarandus rangifer*, subspecies *caribou*), used for rugs, robes, &c.

24774. Labrador. G. R. Renfrew & Co., Quebec.

Barren ground caribou (*Tarandus rangifer*, subspecies *grœnlandicus*).

12363. (Albino.) F. Churchill, Hudson's Bay; W. W. Kirkby.
2050. (Young.) Robe from Mackenzie's River, H. B. T. R. Kennicott.

Moose (*Alces malchis*), used for rugs and robes.

24772. Labrador. G. R. Renfrew & Co., Quebec.

Mole (*Scalops* and *Condylura* sp.), used for robes and garments.

H. 72. United States. C. A. Herpich & Co.

Woodchuck or sifileur (*Arctomys monax*) robes, exported to Europe as "white and gray weenusk."

24776. Labrador. G. R. Renfrew & Co., Quebec.
H. 71. United States. C. A. Herpich & Co.

Marmot (*Arctomys caligatus*), used for robes and trimmings.

835. Robe. Indians of Rocky Mountains, west of Fort Good Hope, H. B. T. R. Kennicott.

Chinchilla (*Chinchilla laniger*) of South America, used for muffs, mantles, boas, cloak-linings, and trimmings.

H. 103. Real. Bolivia. C. A. Herpich & Co.
H. 104. Bastard. Chili. "

Parry's marmot (*Spermophilus Parryi*).

20793. Robe. Sitka, Alaska. J. G. Swan.
835. Robe. Indians of Rocky Mountains, west of Fort Good Hope, H. B. T. R. Kennicott.

Mammal furs.

Musquash (*Fiber zibethicus*), used for muffs, capes, caps, and linings and imitations of beaver fur.

24779. Labrador. G. R. Renfrew & Co., Quebec.
24780. Black variety. Labrador. G. R. Renfrew & Co., Quebec.
H. 12. Natural brown. Maine. C. A. Herpich & Co.
H. 13. Natural brown. Indiana. "
H. 14. Natural black. New Jersey. "
H. 15. Plucked and dyed. C. A. Herpich & Co.
H. 16. Plucked and colored. "

Neutria, or coypu (*Myopotamus coypus*), used for linings and muffs, and imitations of beaver.

H. 105. Plucked. Buenos Ayres. C. A. Herpich & Co.

Beaver (*Castor canadensis*), used for linings and muffs.

1230. Spotted albino. Bristol Bay, Alaska.
24777. American. Labrador. G. R. Renfrew & Co., Quebec.
24778. " " " "
12506. White.
H. 46. Dyed and silver tipped. Hudson's Bay Territory. C. A. Herpich & Co.
H. 47. Dyed and silver tipped. Canada. C. A. Herpich & Co.
H. 48. Dyed and plucked. Lake Superior. "
H. 49. Natural. Lake Superior. "
H. 50. Natural, in hair. Kansas. "

Hare (*Lepus*, various species).

H. 58. United States. C. A. Herpich & Co.
19615. Fur blanket. Pi-Ute Indians. Walker Lake, Nevada. Stephen Powers.

Rabbit, or cony (*Lepus cuniculus*), used for children's furs, and imitations of seal, beaver, &c., exported largely to China.

H. 51. Dyed brown, sheared. United States.
H. 52. Natural blue. "
H. 53. Natural white. "
H. 54. Dyed black. "
H. 55. Natural blue. "
H. 56. Natural white. "
H. 57. Gray. United States. C. A. Herpich & Co.

Possum (*Didelphys virginianus*).

H. 17. Ohio. C. A. Herpich & Co.

Mountain cat (*Bassaris astuta*).

H. 66. Montana. C. A. Herpich & Co.
H. 11. Missouri. "

Bird furs.

Loon (*Colymbus torquatus*).

1302. Used by Makah Indians in manufacture of robes. Neeah Bay, Washington Territory. J. G. Swan.
1296. Robe from down of. Neeah Bay, Washington Territory. J. G. Swan.

Swan's (*Cygnus americanus*) furs and swan's down trimmings.

H. 101. I. United States. C. A. Herpich & Co.
H. 102. II. " "

Brown pelican (*Pelecanus fuscus*).

9559. Tiburon Islands, Sonora. E. Palmer.

Goose (*Anser* sp.).

H. 99. United States. C. A. Herpich & Co.
H. 100. United States. "

7. LEATHER. (See under 20.)

8. TEXTILE FABRICS.

Prepared from hair of mammals.

Human hair used in manufacture of watch-chains.

Hair of bats used in felting and in plaiting ropes in Central America and tassels in New Caledonia.

Hair of raccoon used in felting (largely exported to Germany for the use of hatters).

Hair of weasels and sables used in felting.

Hair of fur seal woven with silk in the manufacture of shawls.

Moose hair and its fabrics.

Ox and calf hair used in the manufacture of imitation woolen goods.

Sheep's wool, with specimens of fleeces and stapled wools, from various breeds and localities, short-wool fabrics, broadcloths, merinoes, flannels, mouselins de laine, serges, tweeds, blankets, carpets, and tartans, worsted fabrics, stuffs, bombazines, camlets, shawls, plushes and velvets, hosiery, and yarns, felts, felt-cloths, and felt-hats.

Goats' wool with specimens of mohairs, cashmeres, plushes, velveteens, camlets, and shawls. (For manufactured wigs and perukes, see under 21.)

(Yak (*Poëphagus grunniens*) wool with specimens of yak-lace and other fabrics.)

(Camels' hair with specimens of fabrics, plushes, felts, shawls, &c.)

(Hair of llama, paco, guanaco, and vicugna, with specimens of alpaca, guanaco, and other fabrics, and umbrellas and other articles manufactured.)

Prepared from hair of mammals.

Hair of horses used in weaving furniture-covers, crinoline-skirts, and bags for pressing oil.
Hair of buffalo used in plaiting ropes, lariats, &c.
Fur of mole used in felting.
Beaver (castor) fur with specimens of the felt cloths, hats, &c.
(Neutria-fur used in felting and in the manufacture of hats.)
Musquash fur used in felting.
Possum hair with fabrics of Indian and other manufacture.
Fur of rabbit and hare used in felting, with specimens of hats and cloths.
Whalebone fiber used in weaving cloth covers for telescopes, &c.

Prepared from feathers of birds.

Cloths woven from feather (China).

Prepared from silk of insects. (This collection should include specimens of the cocoons, the raw silk, the spun silk, and of the various fabrics, plain and figured silks, satins and satinettes, shawls, damasks, brocades, crapes, and ribbons.)

Silk of common silk-worm (*Bombyx mori*).
Silk of *Samia cecropia*, *Samia polyphemus*, and other native American moths.
(Silk of exotic moths other than *Bombyx mori*, such as the tussah (*Bombyx pernyi* and *Bombyx mylitta*), the moonga (*Saturnia assamensis*), the joree (*Bombyx religiosa*), the ena or arindy (*Bombyx cynthia*).)
Fabrics woven by the insects themselves, as *Tinea padilla.*
Silk of spiders.

Prepared from byssus of mollusks.

(Fabrics woven from byssus of the wing-shell (*Pinna nobilis*) and other mollusks.)

III. MATERIALS EMPLOYED IN THE ARTS AND MANUFACTURES.

Hard materials.

9. IVORY AND BONE.

Ivory of mammals.

Tusks of walrus used for trinkets, handles, jewelry, buttons, paper-knives, counters, &c.

25656. Tusks of walrus (*Rosmarus obesus*). Alaska. C. H. Crandall.
15592. Commercial walrus ivory. Poonook, Alaska. H. W. Elliott.
16174. Teeth of young walrus (*Rosmarus obesus*). Used in making powder chargers. Nunivak Island, Alaska. W. H. Dall.
24819. Ivory of walrus in rough state. Joseph Shardlow, New York.
24887. Scrimshawed tooth of walrus (*Rosmarus*). (Figure of lady.) Geo. Y. Nickerson, New Bedford, Mass.
24886. Scrimshawed tooth of walrus (*Rosmarus*). (Figure of lady and horse.) Geo. Y. Nickerson, New Bedford, Mass.
26896. Scrimshawed tooth of walrus (*Rosmarus Cookii*). Repulse Bay. Capt. H. C. Chester, Noank, Conn.
25654. Harpoon head made at sea from walrus tusk. J. H Bartlett & Sons, New Bedford, Mass.
2631. Handle of walrus ivory. Northwest coast, America. United States Exploring Expedition. Capt. Chas. Wilkes, U. S. N.
24815–6. Cane handles of walrus ivory. Joseph Shardlow, New York.
24812. Chain and cross of walrus ivory. " "
24814. Knobs of walrus Ivory. " "
24813. Scarf-slide of walrus ivory. " "
24817–18. Sword handles of walrus ivory. " "
24820–21–22. Knife handles of walrus ivory. " "
24823. Crochet-needles of walrus ivory. " "
24824. Pool-balls of walrus ivory. " "
24825–6–7–8–9–30–31–32. Buttons and studs of walrus ivory. Joseph Shardlow, New York.

Teeth of bears, dogs, wolves, foxes, peccaries, and other large mammals, used as implements, arrow-tips, and ornaments, by Indians.

6226. Bear teeth (used as ornaments). Bloomfield, N. Y. Col. E. Jewett.

Elk ivory (used by Indians for ornamentation).

1874. Ivory of elk (*Cervus canadensis*). Yamp Utah Indians, Utah. Captain Gunnison, U. S. A.

Tusks of mammoth elephant (*Elephas primigenius*) from Northern America and Asia, with Eskimo carvings.[1]

15385. Tusk of mammoth. Alaska. J. G. Swan.
11041. Comb. Made from the ivory of fossil elephant. Saint Michael's, Alaska. W. H. Dall.

[1]An interesting series of aboriginal carvings from mammoth ivory is displayed in the Ethnological division.

Ivory of mammals.

Teeth of peccary (*Dicotyles* sp.).[1]

Ivory of narwhal (*Monodon monoceros*), used for canes.

——. Tusks of narwhal. Greenland. U. S. Fish Commission.
13521. Cane made from tusk of narwhal. Eskimos of North Greenland. F. T. Commagere.

Teeth of sperm-whale (*Physeter macrocephalus*) and their application to the manufacture of balls, buttons, and trinkets.

25653. Teeth of sperm-whale. J. H. Bartlett & Sons, New Bedford, Mass.
25710. Teeth of cow whale. Capt. Joseph Fisher, Provincetown, Mass.
25719. Teeth of sperm-whale. Andrew Kennedy, Provincetown, Mass.
24906–8. Teeth of sperm-whale, polished. J. H. Clark, Newport, R. I.
25709. Teeth of the cow whale (scrimshawed). Capt. Joseph Fisher, Provincetown, Mass.
7428. Tooth of sperm-whale. Scrimshawed with British coat of arms and female figure. J. Varden.
24905. Tooth of sperm-whale. Scrimshawed and mounted as watch case, figure of American eagle. J. H. Clark, Newport, R. I.
24904. Tooth of sperm-whale. Scrimshawed with figure of crucifix and flowers. J. H. Clark, Newport, R. I.
24901. Tooth of sperm-whale. Scrimshawed with figure of whaling-ship. J. H. Clark, Newport, R. I.
24902. Tooth of sperm-whale. Scrimshawed with figure of America in colors. J. H. Clark, Newport, R. I.
24903. Tooth of sperm-whale. Scrimshawed with figure of girl dancing. J. H. Clark, Newport, R. I.
7659. Tooth of sperm-whale. Scrimshawed with this legend: "Taken * by * the * ship * Montreal * of * London * in * the * Pacific * Ocean * from * a * one * hundred * barrel * whale *. — * — 1835 *." Mrs. Dove, Washington, D. C., 1842.
24888. Tooth of sperm-whale. Scrimshawed with figure of General Washington and American eagle. Geo. Y. Nickerson, New Bedford, Mass.
24889. Tooth of sperm-whale. Scrimshawed with figure of General Scott and American eagle. Geo. Y. Nickerson, New Bedford, Mass.
7660. Tooth of sperm-whale. Scrimshawed with figure of pagoda. ??? Pacific Ocean. United States Exploring Expedition. Capt. Charles Wilkes, U. S. N.
25792. Tooth of sperm-whale (scrimshawed) Malcolm McFadyn, Gloucester, Mass.
24836. Balls turned from teeth of sperm-whale. Joseph Shardlow, New York.

Incisors of beaver (*Castor canadensis*) used by Indians for chisels, knives, and ornaments.

2684. Dice. Made from teeth of beaver. Oregon Indians. United States Exploring Expedition. Capt. Charles Wilkes.

[1] Interesting applications of this material may be found in the Ethnological series.

Ivory of reptiles.

Teeth of alligator used for jewelry, whistles, cane-handles, buttons, &c.

26895. Jewelry manufactured from teeth of alligator (*Alligator mississipiensis*). E. F. Gilbert, Jacksonville, Fla.

An extensive trade in alligator teeth has sprung up within the last ten years. Ten establishments in Eastern Florida are engaged in their manufacture into fancy articles.

Ivory of fishes.

Sharks' teeth used in arming weapons.[1]

Teeth of sharks and other fish used as trinkets.[1]

Jaws of the sleeper-shark (*Somniosus brevipinna*) used for headdresses by Indians.

——. Coronet of shark's teeth. Gulf of Saint Lawrence. G. R. Renfrew & Sons, Quebec.

Bone of mammals.

Parts of splanchno-skeleton of feræ, used as charms.

——. Os penis of raccoon, used as charm.

9476. "Os mirabilis" of walrus. Alaska. Gen. Geo. H. Thomas, U. S. A.

Bones of bear and other large mammals, used by Indians for implements and as tablets for paintings.[1]

Bones of buffalo and of the domestic ruminants, used as substitute for ivory in the manufacture of buttons, handles, combs, &c.

24855. Bone parasol-handle. Joseph Shardlow, New York.
24854. Bone parasol-handle. " "
24853. Bone parasol-handle. " "
24852. Bone counters. Joseph Shardlow, New York.
24851. Bone shields. " "
24850. Bone cribbage-pins. " "
24849. Bone dice. " "
24843–4–5–6–7–8. Bone brush-handles. Joseph Shardlow, New York.
24842. Bone martingale-rings. " "
24837. Bone napkin-rings. " "
24833–4–5–6. Bone parasol-handle. " "
19513. Bow. Made of bone. Greenland Eskimos. Geo. Y. Nickerson.
10280. Bow. Made of bone. Eskimo. King William's Land.
25673. Bone marlin-spike. Made at sea by Thomas Freeman. Used for splicing trawl-lines. Sanford Freeman, Norwichport, Mass.

Sperm-whale jaw-bone, used for harness-rings, martingales, &c.

29233–4–5–6–7–8–9–40. Parasol-handles made from sperm-whale's jaw. Harvey & Ford, Philadelphia.

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[1] Displayed in Ethnological division.

Bone of mammals.

Sperm-whale jaw-bone, used for harness-rings, martingales, &c.

29241. Paper-cutters, made from sperm-whale's jaw. Harvey & Ford, Philadelphia.
24909. Chopping-knife. Made from jaw of sperm-whale. Prof. S. F. Baird.
25791. Sail-thimble. Made from bone of whale. J. W. Foster, Beverly, Mass.
25793. Seam-rubber. Used by sail-makers to rub along seams. Made from jaw-bone of sperm-whale. Frank Westerberger, Beverly, Mass.
25650. Sail-maker's hand-fid. Made at sea from jaw-bone of sperm-whale. A. R. Crittenden, Middletown, Conn.
25655. Saw-frame. Made at sea from bone of sperm-whale. J. H. Bartlett & Sons, New Bedford, Mass.
25801. Pulley. Made from jaw-bone of sperm-whale. E. H. Cook, Provincetown, Mass.
25649. Pulley-block. Made at sea from jaw-bone of sperm-whale. A. R. Crittenden, Middletown, Conn.
25713. Seine-needle. Made from jaw-bone of sperm-whale. N. H. Payne, Wellfleet, Mass.

Horn-cores of ruminants, used in manufacture of assayers' cupels.

Bone of birds.

Bones of birds, used by Indians and Eskimos in making awls, needles, flutes, bird-calls, and dress-trimmings.

10333. Gambling-sticks. Made from bones of white crane. Mojave Indians. Dr. E. Palmer.

Bone of fishes.

Fish-bones, used by Indians and Eskimos in making implements.[1]
Bone of sword-fish.

25675. Shoemaker's tool. Made from sword of sword-fish (*Xiphias gladius*). Sanford Freeman, Norwichport, Mass.

Sharks' vertebræ, used for canes.

Waste bone and ivory.

Use in manufacture of bone-black, ivory-black, and bank-note ink (see under 29).
Use in manufacture of sizes and glues (see under 24).
Use in manufacture of gelatine for food (see under 4).
Use in manufacture of phosphorus, carbonate of ammonia (hartshorn), and sal ammoniac (see under 30).
Use in manufacture of bone-charcoal for filters (see under 30).
Use in manufacture of paper.
Use of shavings in case-hardening gun-barrels and other fine steel.

[1]Displayed in Ethnological series.

Waste bone and ivory.

10. Horn.

(Embracing the varieties of horn known to commerce, the split and pressed horns, and the various manufactured articles, such as jewelry, combs, and handles.)

Horn (employed as a material).

Horns of ox, sheep, and goat, used for handles, buttoms, combs, powder-flasks, cups, boxes, stirrups, spoons, and imitations of tortoise-shell, also "sensitive Chinese leaves," and formerly for transparent plates in lanterns and horn-hooks, for trumpets, and for finger-nails in lay figures.

25277. Cow's horns. Philip R. Woodford, Boston, Mass.
25274. Steer's horns. " "
25276. Bull's horns. " "

Horn of buffalo, used like that of ox.

25278. Horns of buffalo bull. Philip R. Woodford, Boston, Mass.
25280. Horns of buffalo calf. " "
25279. Horns of buffalo cow. " "
8489. Spoon of buffalo horn. Assinaboin Indians. Fort Buford, Dakota. Dr. J. P. Kimball, U. S. A.
11030. Spoon of buffalo horn. Yellowstone Valley, Dakota. Lieutenant Cusick.

Horn of musk ox (*Ovibos moschatus*).

11648. Arctic regions. Capt. C. F. Hall.
10389. Spoon made from horns of musk ox. Igloolik. Capt. C. F. Hall.
25275. Ox horns. Philip R. Woodford, Boston, Mass.

Series of articles manufactured from horn. Geo. F. Lincoln, Leominster, Mass.:

29507. Horn as it comes from the press, cut out preparatory to making combs.
29508. Combs. Cut.
29509. Unfinished combs.
29510. Horn cut into small pieces for use in manufacture of jewelry.
29571. Finished comb.
29502. Polished jewelry (uncolored).

Horn of mountain sheep and mountain goat, used by Aleutians in making spoons, bowls, and numerous other implements.

16809. Horns of mountain goat (*Mazama montana*). Used by Eskimo for making horn spoons. Alaska. W. H. Dall.
20623–4. Spoon made from horn of mountain goat. Bella Bella Indians. J. G. Swan.
9278. Spoon made from horn of mountain goat. Alaska. A. H. Hoff, U. S. A.

Horn (employed as a material).

Horns of Rocky Mountain sheep (*Ovis montana*).

704. Spoon made from horn of Rocky Mountain sheep. Northwest coast. George Gibbs.
20842. Spoon made from horn of Rocky Mountain sheep. Haidah Indians. Prince of Wales Island, Alaska. J. G. Swan.
14455. Spoon made from horn of Rocky Mountain sheep. Pi-Ute Indians. Maj. J. W. Powell.

Antlers.

Antlers of deer, elk, and moose (stag horn), used in the manufacture of handles for instruments, trinkets, and buttons.

26229–26–30. Carving from horn of deer (*Cariacus virginianus*). Harvey & Ford, Philadelphia.
21312. Spoon carved fron antler of elk (*Cervus canadensis*). Hoopah Indians, California. S. Powers.

Antlers of deer, elk, moose, and nearly all species of ruminants, employed for ornamental purposes. (A series of these antlers is used in the decoration of the columns in the Government building.)

Chemical and other applications.

Burnt horn (*cornu ustum*) used in dentifrices.
Carbonate of ammonia (hartshorn), manufactured from deer horns. (See under 30.)

11. Hoofs and claws, &c.

(Embracing the commercial hoof, and the various stages of manufacture represented by specimens.)

Hoofs.

Hoofs of ox and bison, used in making buttons, combs, and handles.

26901. Commercial hoof. Philip R. Woodford, Boston, Mass.
Series of articles made from hoof. Geo. F. Lincoln, Leominster, Mass.:
29516. Dust made from the hoof.
29517. Belt buckle.
29518. Martingale rings.
29519. Breastpin.
29520. Cross for neck wear.
29521. Breastpin.

Hoofs of horse, used like those of ox and bison.
Hoofs of musk ox, deer, and antelope, used by Indians in ornamentation.

7443. Hoofs of musk ox. Used for trimming of garments by Eskimos. Mackenzie's River. R. MacFarlane.

Feet of deer, used for knife-handles, stool-feet, &c.

Claws.

Claws of bear, puma, wolf, &c., used by Indians in ornamentation. (See Ethnological series.)

Human nails, used by Indians for ornamental trimming.

Chemical application of hoofs and claws.

Use in manufacture of prussiate of potash (see under 30).

Use in manufacture of glue (see under 24).

12. Baleen.

Whalebone in an unmanufactured state.

14042. Baleen of humpback whale (*Megaptera versabilis*). Coast of California, 1873. C. M. Scammon.

12311. Bone of humpback whale (*Megaptera versabilis*). Coast of California. C. M. Scammon.

13893. Baleen of humpback whale (*Megaptera versabilis*). Monterey, Cal. 1873. C. M. Scammon.

13019. Baleen of humpback whale (*Megaptera versabilis*). Monterey, Cal. 1872. C. M. Scammon.

12263. Baleen of humpback whale (*Megaptera versabilis*). San Luis, Cal. C. M. Scammon.

13020. Baleen of humpback whale (*Megaptera versabilis*). San Luis, Cal. C. M. Scammon.

13985. Baleen of sulphur-bottom whale (*Sibbaldius sulfureus*). Monterey, Cal. C. M. Scammon.

13984. Baleen of sulphur-bottom whale (*Sibbaldius sulfureus*). Monterey, Cal. C. M. Scammon.

12052. Bone of the California gray whale (*Rhachianectes glaucus*). Monterey, Cal. 1873. C. M. Scammon.

15402. Baleen. North Pacific. Capt. Henderson.

7494. Whalebone. Anderson River Eskimos. Mackenzie's River district. R. MacFarlane.

1108. Whalebone. Prepared by Anderson River Eskimos. Mackenzie's River district. R. MacFarlane.

1116. Whalebone. Anderson River Eskimos. Mackenzie's River district. R. MacFarlane.

2079. Whalebone. Arctic coast. R. MacFarlane.

24976. Whalebone fiber. Curled for bed-stuffing. J. A. Sevey, Boston, Mass.

24930. Whalebone. Prepared for whip-makers' use. J. A. Sevey, Boston, Mass.

24862. Whip with whalebone stock, knotted, inlaid with whale-tooth's ivory, handle wound with thin whalebone. American Whip Co., Westfield, Mass.

24950. Dress-bone. Whalebone prepared for dress-makers' use. J. A. Sevey, Boston, Mass.

24946. Whalebone. Prepared for suspender-makers' use. J. A. Sevey, Boston, Mass.

24945. Whalebone. Prepared for bonnet-makers' use. J. A. Sevey, Boston, Mass.

24941. Whalebone. Prepared for umbrella-makers' use. J. A. Sevey, Boston, Mass.

Whalebone in an unmanufactured state.

24940. Whalebone. Prepared for parasol-makers' use. J. A. Sevey, Boston, Mass.
24951. Gross dress-bone. Whalebone prepared for dress-makers' use. J. A. Sevey, Boston, Mass.
24948. White dress-bone. Whalebone (white) prepared for dress-makers' use. J. A. Sevey, Boston, Mass.
24978. Whalebone. Prepared for brush-makers' use. J. A. Sevey, Boston, [Mass.
24942. Whalebone. Prepared for ribbon-weavers' use. " "
24943. Whalebone. Prepared for hat-makers' use. " "
24944. Whalebone. Prepared for cap-makers' use. " "
24947. Whalebone. Prepared for neck-stock-makers' use. " "
24952. Whalebone. Prepared for corset-makers' use. " "
24949. Round dress-bone. Whalebone prepared for dress-makers' use. J. A. Sevey, Boston, Mass.
24977. Whalebone fiber. J. A. Sevey, Boston, Mass.
24938. Whalebone cane. Black and white, twisted. J. A. Sevey. Boston, [Mass.
24973. Whalebone boot-shanks. " "
24967. Whalebone tongue-scrapers. " "
24966. Whalebone probang. " "
24935. Whalebone riding-whip, made of black and white whalebone, twisted. J. A. Sevey, Boston, Mass.
24934. Whalebone riding-whip. J. A. Sevey, Boston, Mass.
24937. Whalebone cane. Plain. " "
24936. Whalebone cane. Twisted. " "
24972. Whalebone graining-comb. Used by painters. J. A. Sevey, Boston, [Mass.
24965. Whalebone probang. " "
24980. Whalebone caterpillar-brush. " "
24981. Whalebone shavings. " "
24963. Whalebone back-supporter. " "
24979. Whalebone flue-brush. " "
24975. Whalebone fiber shoe-brush. " "
24983. Whalebone. Sample. " "
24959. Whalebone divining-rod. " "
24958. Whalebone angling-rod tip " "
24956. Whalebone rosettes for harness. " "
24962. Whalebone landing-net rod. " "
24954. Whalebone hip busk bone. " "
24984. Whalebone. Price-list samples. " "
24970. Whalebone penholder. Black and white, twisted. " "
24961. Whalebone busk. " "
24964. Whalebone fore-arm bones. Artificial. " "
24968. Whalebone plait-raiser. " "
24969. Whalebone penholder. " "
24955. Manufactured corset, showing use of whalebone. " "
24953. Whalebone corset-clasps. " "
24960. Whalebone drill-bow. " "
24957. Whalebone billiard-cushion springs. " "
24971. Whalebone paper-cutter. " "
24985. Whalebone rule. " "

Whalebone in an unmanufactured state.

24860. Whalebone and rattan whip-stalk. Finished, ready for covering. American Whip Company, Westfield, Mass.
24858. Whalebone. As prepared for use in the whip. American Whip Company, Westfield, Mass.
24859. Whalebone and rattan. Fitted ready for sticking together for whip-stalk. American Whip Company, Westfield, Mass.
24857. Whalebone. In rough state, as sold to whip manufacturers. American Whip Company, Westfield, Mass.
24982. Whalebone. Prepared for whip-makers' use (patent). J. A. Sevey, Boston, Mass.

13. Tortoise-shell.

Tortoise-shell (*Eretmochelys squamata* Linn.).

12387–8–9–90. Tortoise-shell (*Eretmochelys squamata* Linn.). Pacific hawk's-bill turtle. Pacific coast.
24890. Commercial tortoise-shell. George Y. Nickerson, New Bedford, Mass.
26891. Tortoise-shell jewelry, &c. Charles W. Kennard & Co., Boston, Mass.:
Comb cut and polished.
Comb cut before polishing.
Brooch and ear-rings.
Sleeve-buttons.
Necklace and locket.

14. Scales.

Scales of fishes used in ornamental work, with specimens of flowers and other articles manufactured.

Fish-scale jewelry. F. C. Keergaard & Co., Philadelphia, Pa.:

25480. Scales of sheepshead (*Archosargus probatoccphalus*).
25481. Scales of sheepshead (*Archosargus probatocephalus*). Prepared for use.
25482. Brooch and ear-rings. " "
25483. Spray of flowers. " "
25484. Spray of flowers. " "
25485. Spray of flowers. " "
25486. Spray of flowers. " "
25487. Spray of flowers (dyed). " "
25488. Necklace and cross. " "
25489. Brooch and ear-rings. " "
25490. Brooch and ear-rings (dyed) (*Archosargus probatoccphalus*).
26892. Jewelry made from scales of mullet, drum, &c. Mrs. C. E. Mott, Jacksonville, Fla.

(Pearl white, or *essence d'Orient*, prepared from scales of *Alburnus lucidus* and other *Cyprinidæ* and *Clupeidæ*, used in making artificial pearls.) (See under 27.)

26893. Essence d'Orient. (Introduced for comparison.) Gustave Bossange, Paris.

15. Pearl.

Pearls and nacre (embracing the pearl-yielding shells, with the pearls and the mother-o'-pearl in the rough state, with the manufactured buttons, handles, and jewelry, pearl-powder, inlaid work, and papier-maché, ornamented with mother-o'-pearl.

Top-shells (*Turbinidæ*), and their application to manufacture of shell-flowers.[1]

Tower-shells (*Trochidæ*).[1]

Ear-shells (*Haliotidæ*), used in manufacture of buttons, handles, inlaid work, and pearl powder.[1]

Other gasetropods supplying nacre.[1]

Pearl-oysters (*Aviculidæ*), with pearls and nacre.[1]

River-mussels (*Unionidæ*), with pearls and nacre.[1]

Mussels, oysters, and other conchifers supplying pearls and nacre.[1]

Shells of nautilus and argonaut, prepared to exhibit their nacre.[1]

Ornamental pearl-work, imitating sprays of flowers, &c.[1]

Imitation pearls.[1]

16. Shell.

Cameo shell.[1]

Shell of conch (*Strombus gigas*), and carvings.[1]

Shell of helmet (*Cassis rufa*, *C. tuberosa*, and *C. madagascariensis*), with carvings.[1]

Shells used for implements, &c.[1]

Shells of *Strombus*, *Triton*, *Dolium*, *Fusus*, *Murex*, and *Buccinum*, used for fog-horns, lamps, vases, and ornamental borders in flower-gardens.[1]

Shells of *Busycon*, *Sycotypus*, *Mactra*, &c., used by Indians in manufacture of implements, with specimens of implements.[1]

Shells of *Mactra*, used for ladles, scoops, and spoons by fishermen.[1]

Shells of *Tridacua*, used for vases, fountains, and in the manufacture of handles and carvings.[1]

Shells of *Pecten*, *Haliotis*, *Dentalium*, *Mercenaria*, &c., used by Indians for trimmings and ornaments.[1]

Shells of *Pecten*, used in making pin-cushions and purses.[1]

Shells of *Mercenaria violacea*, *Purpura lapillus*, and *Buccinum undatum*, used by Indians of eastern coast in manufacture of money, with specimens of wampum (with the modern wampum or shell-beads, manufactured for the Indian trade), and of the hyqua or *Dentalium* shells, employed in a similar manner by the Indians of the Pacific coast.[1]

Specimens of the cowry (*Cypraca moneta*), "live cowry" and dead cowry, used in African trade and for trimmings.[1]

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[1] See in Part II of the present catalogue.

Shells used for implements, &c.

Shells of *Cypraea*, *Rotella*, *Oliva*, *Turritella*, *Phasianella* (Venetian shells), &c., mounted as buttons and jewelry.[1]

Composition shell-work for box-covers and frames, made by gluing shells in mosaic.[1]

Calcined shells, used by dentifrice and porcelain makers.[1] (See, also, under 32.)

Cuttle-fish bone from *Sepia officinalis*, used as a pounce, as a dentifrice, as polishing powders, for taking fine impressions in counterfeiting, and as food for birds.[1] (See, also, under D 5.)

Concretions from the stomach of *Astacus*, known as "crab's-eyes" and "crab-stones," and used as antacids.[1]

Shell of king-crab (*Limulus polyphemus*), used as a boat-bailer.[1]

Opercula of mollusks, used as "eye-stones."[1]

17. Coral.

Coral as a material.

Red coral (*Corallium nobilis*), with specimens of the five commercial grades (1, froth of blood; 2, flower of blood; 3, 4, 5, blood of first, second, and third qualities) of the white variety, and of the round beads, *negligée* beads, bracelets, pins, coronets, armlets, ear-rings, &c.[1]

White coral, *Oculina*, sp., used by jewelers.[1]

Madrepores and other showy corals, used for ornamental purposes.[1]

Horny axis of black flexible coral (*Plexaura crassa*), used for canes and whips in the Bermudas.[1]

Axis of fan coral (*Rhipidogorgia*), used for skimmers and strainers in the Bermudas.[1]

Coral, used for building purposes.[1]

Coral rock of recent formation (Coquina), used in Florida in manufacture of ornamental vases and carvings.[1]

Calcined coral, used for dentifrices, as an antacid, &c.[1]

Imitations of red coral in celluloid, rubber, and other substances.[1]

18. Infusorial earths.

Polishing powders (used for polishing metals, cabinet-ware, and stone).

Specimens of polishing slate, tripoli, and other foreign polishing powder.[1]

Specimens of American infusorial deposits.[1]

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[1] See under Part II of this catalogue.

Infusorial earths employed in manufactures.

Infusorial earth, used in making window and plate glass.[1]
Infusorial earth, used in making soluble glass.[1]
Infusorial earth, used in making morfar.[1]
Infusorial earth, used in making molds for metal casting.[1]
Infusorial earth, used in making filters.[1]
Infusorial earth, used in making dynamite.[1]
Infusorial earth, used in making fire-proof packing.[1]
Infusorial earth, as an absorbent for oils and liquids.[1]

19. OTHER MATERIALS FROM INVERTEBRATES.

From insects.

Brazilian diamond-beetles, used in jewelry.
Wings of beetles, used in embroidery.

From echinoderms.

Spines of echinoids, used for slate-crayons.

Flexible materials.

20. LEATHERS. (Embracing the hides in a rough state, in the various stages of dressing, and manufactured into shoe-leather, parchment, vellum, binders' leather, thongs, &c.

Leather prepared from mammal skins.

Leather prepared from human skin.

26070. Boots made from skin of man. H. & A. Mahrenholz, New York.

Sea-lion leather, used by Eskimos to cover bidarkas, and for garments and beds.

11371. Leather of sea-lion (*Eumetopias stelleri*). Used by Aleutian Islanders for manufacture of canoe. Alaska. Vincent Colyer.

Walrus leather, used by Eskimos for harness, tables, thongs, seal-nets, and for covering polishing-wheels.

15617. Harpoon-line of walrus leather. Alaska. H. W. Elliott.

Seal leather, used for fine shoes and in the manufacture of "patent leather," and by Eskimos for numerous purposes.

10186. Seal-skin bleached by hot water. Innuit Eskimos. Arctic Ocean. Capt. C. F. Hall.
1103. Seal-skin leather tanned by Eskimos. Mackenzie's River district. R. MacFarlane.
24785. Indian moccasins made from skin of seal (*Phoca vitulina?*) G. R. Renfrew & Co., Quebec.

[1] See under Part II of this catalogue.

Leather prepared from mammal skins.

Bison leather (and buffalo leather, buff-leather).

25951. Imitation buckskin. Manufactured from skin of American bison (*Bison americanus*). Wilcox Tannery, Elk County, Pennsylvania.
25952. Collar leather. Manufactured from skin of American bison (*Bison americanus*). Wilcox Tannery, Elk County, Pennsylvania.
25954. Sole leather. Manufactured from skin of American bison (*Bison americanus*). Wilcox Tannery, Elk County, Pennsylvania.
25953. Whang leather. Manufactured from skin of American bison (*Bison americanus*). Wilcox Tannery, Elk County, Pennsylvania.

Ox leather, with specimens of sole leather, split leather, grain leather, rawhide thongs, whips, leather belts and saddles, and of calf-skins, prepared for binders' and bootmakers' use, as Russia leather and vellum, and tawed, as parchment.[1]

Sheep leather, with specimens of binders' leather, imitation chamois leather, wash leather, buff leather, roan, imitation morocco and parchment, with vellum made from skins of dead-born lambs, and manufactured gloves, &c.[1]

Goat leather, with specimens of shagreen leather, morocco leather, as used for linings, upholstery, bindings, and pocket-books, parchment, drum-heads, &c., with kid leather, used in manufacture of shoes and gloves, under-clothing, and vellum made from skin of young kids, also skin bottles used in Asia.[1]

Horse and ass leather, used in manufacture of shagreen, sole leather, harness-leather, saddles, trunks, water-hose, pump-valves, military accouterments, ladies' shoe-uppers.[1]

8871. Tanned ox-skin, used for sole leather. Cheyenne Indians, Kansas. Dr. G. M. Sternberg, U. S. A.

Rawhide.

29549. Rawhide prepared for belting. Darrow Manufacturing Company.
29546. Coil of rope. Made from rawhide. " "
29548. Basket. " "
29547. Doll's head. " "
29545. Powder-flasks. " "

Deer leather, dressed as buff leather, chamois-imitation leather, Indian dressed (buckskin), and for the finer moroccos, also manufactured into gloves, gaiters, under-garments, polishers, &c.

25282. Buck-tanned skin of mule deer (*Cariacus macrotis*). Indians.
6977. Leather from skin of deer (*Cariacus macrotis?*). Tanned by Caddo Indians. E. Palmer.
5554. Buck-tanned deer-skin (*Cariacus macrotis*). Apache Indians. E. Palmer.
14383. Buck-tanned skin of deer (*Cariacus macrotis*). J. W. Powell.

[1] In view of the extensive exhibition of leathers in the Shoe and Leather Building, no special effort has been made to complete this part of the collection.

Leather prepared from mammal skins.

Deer leather, &c.

6978. Buck-tanned skin of deer (*Cariacus macrotis*). Comanche Indians. E. Palmer.
11606. Buckskin (*Cariacus columbianus*). Dressed by McCloud Indians. Shasta County, California. Livingston Stone.
11605. Buckskin (*Cariacus columbianus*). Tanned by McCloud Indians. Shasta County, California. Livingston Stone.
11604. Buckskin (*Cariacus columbianus*). Tanned by McCloud Indians. Shasta County, California. Livingston Stone.
8540. Buckskin for moccasins. Nebraska. Dr. S. M. Horton, U. S. A.
26885. Skin of Virginia deer (*Cariacus virginianus*). Seminole Indians of Florida. G. Brown Goode.
24800. Tanned skin of young Virginia deer (*Cariacus virginianus*). J. H. Henderson, Big Coon, Ala.

Moose leather in ordinary and buckskin finish.

24781. Moccasins made from skin of moose (*Alces malchis*). Huron Indians. G. R. Renfrew & Co., Quebec.
24787. Rubber-sole moccasins made from skin of moose (dyed). G. R. Renfrew & Co., Quebec.
24782. Indian moccasins made from skin of moose. Iroquois tribe. G. R. Renfrew & Co., Quebec.
24773. Indian buck-tanned skin of moose (*Alces malchis*). Labrador. G. R. Renfrew & Co., Quebec.
24786. Indian moccasins made from skin of moose. "Lady's size." G. R. Renfrew & Co., Quebec.
838. Smoke-tanned skin of moose (*Alces malchis*). Slave (Lake?) Indians. R. Kennicott, Fort Liard.

Caribou leather in ordinary and buckskin finish.

24775. Indian buck-tanned skin of caribou (*Tarandus rangifer*). Labrador. G. R. Renfrew & Co., Quebec.
24783. Indian moccasins made from skin of caribou. "Man's size." G. R. Renfrew & Co., Quebec.
24784. Indian moccasins made from skin of caribou. "Woman's size." G. R. Renfrew & Co., Quebec.

Reindeer leather.[1]

836. Smoke-tanned skin of barren-ground caribou (*Tarandus rangifer*, subspecies *grœnlandicus*). Mackenzie's River district. R. Kennicott.

Elk leather in ordinary and buckskin finish.

8536. Elk-skin tanned with smoke. Nebraska. Dr. S. M. Horton, U. S. A.

Mountain-sheep leather.

8548. Buck-tanned skin of mountain sheep (*Ovis montana*). Nebraska. Dr. S. M. Horton, U. S. A.

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[1] See garments in Ethnological division.

Leather prepared from mammal skins.

Series of different leathers illustrating the manufacture of gloves:

25286. Raw skin of "Maranham jack" deer (*Cariacus* sp.) from South America. S. G. Hutchinson & Co., Johnstown, N. Y.

25287. Skin of "Maranham jack" deer, dressed by glove manufacturer, ready for cutting. S. G. Hutchinson & Co., Johnstown, N. Y.

25288. Gloves manufactured from skin of "Maranham jack" deer. S. G. Hutchinson & Co., Johnstown, N. Y.

25289. Raw skin of deer (*Cariacus* sp.). From Central America. S. G. Hutchinson & Co., Johnstown, N. Y.

25290. Skin of deer dressed by glove manufacturers. Central America. S. G. Hutchinson & Co., Johnstown, N. Y.

25291. Raw skin of mule deer (*Cariacus macrotis*). S. G. Hutchinson & Co., Johnstown, N. Y.

25292. Skin of mule deer (*Cariacus macrotis*). Fat or liquor dressed. S. G. Hutchinson & Co., Johnstown, N. Y.

25293. Skin of mule deer (*Cariacus macrotis*). Oil dressed. S. G. Hutchinson & Co., Johnstown, N. Y.

25294. Gloves made from skin of mule deer (*Cariacus macrotis*). S. G. Hutchinson & Co., Johnstown, N. Y.

25295. Raw skin of African "blees bok." S. G. Hutchinson & Co., Johnstown, N. Y.

25296. Skin of African "blees bok" (dressed). S. G. Hutchinson & Co., Johnstown, N. Y.

25297. Gauntlet gloves made from skin of African "blees bok." S. G. Hutchinson & Co., Johnstown, N. Y.

25298. Raw skin of prong-horn or antelope (*Antilocapra americana*). S. G. Hutchinson & Co., Johnstown, N. Y.

25299. Skin of prong-horn or antelope (*Antilocapra americana*). Dressed and colored. S. G. Hutchinson & Co., Johnstown, N. Y.

25300. Gloves made from skin of prong-horn or antelope (*Antilocapra americana*). S. G. Hutchinson & Co., Johnstown, N. Y.

25301. Raw skin of south American peccary (*Dicotyles labiatus*). S. G. Hutchinson & Co., Johnstown, N. Y.

25303. Gloves made from skin of South American peccary (*Dicotyles labiatus*). S. G. Hutchinson & Co., Johnstown, N. Y.

25302. Skin of South American peccary (*Dicotyles labiatus*). Dressed for glove manufacturer. S. G. Hutchinson & Co., Johnstown, N. Y.

25304. Buck-tanned skin of sheep. " "

25305. Dressed skin of sheep, tanned like kid leather, but smoked instead of colored. S. G. Hutchinson & Co., Johnstown, N. Y.

25306. Sheep-skin made into "kid leather." S. G. Hutchinson & Co. Johnstown, N. Y.

25307. Gloves made from "kid-dressed" sheep-skin. S. G. Hutchinson & Co., Johnstown, N. Y.

25308. "Kid"-dressed lamb-skin, ready for coloring. S. G. Hutchinson & Co., Johnstown, N. Y.

25309. Lamb-skin "kid-dressed," colored. S. G. Hutchinson & Co., Johnstown, N. Y.

25310. Gloves made from "kid-dressed" lamb-skin. S. G. Hutchinson & Co., Johnstown, N. Y.

25311. Lamb-skin dressed in Germany. S. G. Hutchinson & Co., Johnstown, N. Y.

Leather prepared from mammal skins.

Series of different leathers illustrating the manufacture of gloves.

The following account of the glove trade in North America is from the pen of Mr. S. G. Hutchinson:

"The manufacture of gloves and mittens from leather was started in Fulton County, New York (according to best information), in the year 1809, by people from Connecticut, who first engaged in the manufacture of tinware and in exchanging their tinware for the products of the country. They thus obtained deer-pelts, which they learned to tan according to the Indian process, and, using paper patterns, cut and made them into rough mittens and gloves. Subsequently they learned a better process of tanning, and also have made great improvements in manufacturing gloves; and from apparently insignificant and accidental beginnings has originated an industry which is estimated to produce over $4,000,000 worth of manufactured goods, and which business has never as yet been successfully transplanted elsewhere.

"The skins used in the manufacture of gloves and mittens are the different varieties of deer-skins and sheep and lamb skins. The deer-skins are gleaned from the entire United States, Mexico, Central and South America, and Africa, and there is as much difference in the quality of the skins from the different countries as in the climate of the countries or localities from which they come. The heaviest and most valuable skins come from under the equator.

"Sheep-skins are extensively used in the manufacture of gloves as well as deer-skins. It is estimated that over 100,000 dozen are used annually. The quality of these varies as much as deer-skins, and depends as much upon the section of country from which they come, the coarse-wool skins making the best leather. A part of the sheep-skins are dressed in a similar manner to the deer-skins, and are finished to resemble buckskin. Many sheep and lamb skins are by a very different process made into what is called kid leather, the lamb-skins, especially, making a very nice glove; in fact, some of the lined fur-trimmed gloves made from this kid leather excel any of foreign manufacture.

"To give a more definite idea of where the deer-skins come from, I will give a little item of statistics of arrivals of deer-skins at the port of New York in the years 1868 to 1872, inclusive:

Whence.	1868.	1869.	1870.	1871.	1872.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Central America	254,200	249,000	252,900	230,700	249,000
Para	288,500	214,900	185,700	150,900	141,800
Angostura	100,000	89,600	173,000	157,500	65,000
Puerto, Cal.	60,000	210,300	115,000	31,500	154,400
Sisal	105,000	62,000	84,000	67,700	125,500
Honduras	60,800	52,300	61,500	57,900	62,500
Vera Cruz	30,000	26,700	19,000	19,500	21,000
Campeachy	24,000	12,500	19,400	21,000	12,500
Total	923,000	917,300	909,600	736,700	832,200

"And to give you something of an idea of how these deer-skins are converted into leather ready for cutting into gloves, I will copy a poem written by Horace Sprague in 1859. However, the operation has been somewhat changed and much improved since:

"'And be it mine in brief to comprehend,
From the inception to the final end,
Through every process, how the routine moves
From unwrought hides to manufactured gloves.

Leather prepared from mammal skins.

Series of different leathers illustrating the manufacture of gloves:

First into vats, low sunken in the ground,
The rattling skins are thrown with husky sound,
And there for days are suffered to remain,
Until the water permeates the grain,
And their whole yielding form and texture make
Pliant and supple, fitting them to break.
Prone o'er the slanting beam the breaker plies,
With long two-handled knife, his energies
All the adhering flesh to clean away.
His is the hardest work and poorest pay.
Flesh-liming, or the hairing process called,
Is next in order and is next installed.
Upon the flesh-side of the broken skin
Quick-lime is spread and safely folded in;
Then in the soak or water vat with care
'T is placed ten days for loosening the hair,
And when the beam and knife again are proved
The hairy coat is easily removed.
In lime-vats next the skins are put to lime;
From one to six weeks is the allotted time.
This process, perfected by low degrees,
Thickens the skins and smooths the surfaces.
Frizing requires the beam and knife again,
To shave clean off the cuticle or grain.
Parching is used for heavy skins alone.
The meaning of the term is drying down;
Not in the fervors of the scorching sun,
But in the shade alone, 't is safely done.
A soaking then ensues until
They 're softer made and fitted for the mill.
Milling in order next succeeds, of course.
Placed in the stock, by steam or water force
The skins are briskly run six hours or more
To supple them and open every pore,
Then taken out to air. With oil imbued,
Replaced again, and milling is renewed.
Each half hour afterward alternately
They 're in the stocks or out to air and dry,
Until throughout the substance of the skin
The oil commingles with the gelatine
Or glue, and leaves the other parts together
The true and genuine product we call leather.
The beam and scudding-knife again are plied
For scudding on the grain or facial side.
The mucous substance or reticular
Tissue of the skin is shaved off bare.
The process then, to perfect and to crown,
Requires a day at most for drying down.
Next in lye-liquor vats they 're placed awhile,
In vulgar parlance, 'for to cut the ile';
But by the chymic law affinity
The oil gelatinous and alkali
Combine, without a figure or a trope,
And form the useful product we call soap.
A half hour in the stocks the skins being run,
The soap washed out, and thus the scouring 's done.
To soften, to give shape, and natural size,
Duly the stacking process next applies.
Fast in the perch the pendent skin being placed,
Grasped by the hand and firmly shoulder-braced,
The arm-stake then is vigorously applied
To supple and extend the leathery hide,
While the knee-stake is more suitably found
Fitted to stretch and smooth the edges round.
Ocher with water mixed, when dried enough
And into square blocks fashioned, is called buff,

Leather prepared from mammal skins.

Series of different leathers illustrating the manufacture of gloves.

> Which by the hand is rubbed upon the skin.
> Perch hung until the ocher's well wrought in
> And deeply set, producing a soft, mellow,
> Golden, enduring, inerasive yellow.
> This buffing named. The process next to bring
> The manufacture through is finishing.
> A horizontal shaft, firm overlaid
> With emery, and by machinery made
> To turn, elaborates the skin placed on
> To perfect smoothness, and the work is done.'

"The manufacture of the different kinds and styles of gloves is becoming divided up so that many of our leading manufacturers are making a specialty of some particular kind of gloves. Some make exclusively heavy buckskin gloves and mittens; others make exclusively sheep-skin gloves and gauntlets; others, lined kid gloves of various kinds and styles; others, unlined kid and antelope or castor gloves and ladies' gauntlets, thus enabling them to pay strict attention to their particular branch, and reaching the highest degree of perfection attainable at this age and stage of the business.

"Marked progress is yearly made in this industry, and it is predicted that in no distant future the finest gloves made in the world will be made here in the two villages of Johnstown and Gloversville, N. Y."

Porpoise leather.

Beluga leather dressed as kid, sole, harness, velvet, plush, boot, mail-bag, belt, and patent (varnished) leather.

26018. Tanned skin of beluga (*Delphinapterus catodon*). G. R. Renfrew & Co., Quebec.

26019. Lace leather, "Riviére du Loup en bas." Manufactured from the skin of beluga (*Delphinapterus catodon*), by the Gulf Porpoise Fishing Company.

Beaver leather, used in manufacture of saddles, shoes, gloves, and trunks.

Rat leather, used for thumbs of kid gloves.

Leather trimmings, used as stuffing for balls, &c.

Prepared from intestines of mammals.

Parchment from viscera of seals, used by Eskimos for clothing, bags, and blankets.

6559. Intestine of seal. Used for waterproof clothing. Cook's Inlet. Dr. T. T. Minor.

5570. Intestine of seal. Used for waterproof clothing. Yukon River. W. H. Dall.

6559. Intestine of seal. Prepared and used for clothing. Dr. T. T. Minor.

20802. Prepared seal-gut for waterproof dresses. Sitka, Alaska. J. G. Swan.

See also numerous garments of this material displayed in the Ethnological division.

Prepared from intestines of mammals.

Leather from pharynx of seal and walrus, used by Eskimo for boot-soles.

Parchment from viscera of bears, used in Kamtchatka for masks and window-panes.

Viscera of ox, used in manufacture of gold-beaters' skin.

Bladders of animals, used for pouches, parchment, bottle and jar covers, and by Eskimo for oil-bottles.

Viscera of sheep, used in manufacture of "cat-gut," with specimens of whip-cord, hatters' cord, for bowstrings, clockmakers' cord, filandre, guitar, violin, and harp strings, angling-lines, &c.

Viscera of hog, used as envelopes for minced meat, sausages, &c.

Throat of sea-lion (*Eumetopias Stelleri*), dressed as parchment envelopes to preserve valuable papers.

20803. Sitka Indians, Alaska. J. G. Swan.

Sinews of sheep, deer, goat, buffalo, seal, walrus, and other animals, used in manufacture of threads, lines, nets, and snow-shoes, in strengthening bows, &c.; the babiche of the Eskimos of the Northwest coast.

5185. Babiche. Siccanee Indians. British Columbia. J. T. Rothrock.
2034. Mackenzie's River. R. Kennicott.
849. Mackenzie's River. "
842. Moose sinew. Fort Good Hope. Mackenzie's River. R. Kennicott.
2036. Sinews of moose and caribou. Fort Liard Indians. "
5546. Deer sinew. Apache Indians. Dr. E. Palmer.
2200. Babiche. Undressed skin of mountain sheep.
843. Babiche from mountain sheep. Mackenzie's River. R. Kennicott.
1882. Bow covered with sinew of mountain sheep (*Ovis montana*). Digger Indians. California. Captain Gunnison, U. S. A.
24788. Snow-shoes made from sinew of caribou (man's size). G. R. Renfrew & Co., Quebec.
24789. Snow-shoes made from sinew of caribou (woman's size). G. R. Renfrew & Co., Quebec.

Prepared from bird-skins (Eskimos).

Eider leather.[1]

Auk leather.[1]

7453. Oil-bag. Made from skin of loon's foot. Fort Anderson. R. MacFarlane.

Prepared from reptile skins.

Alligator leather.

16810. Salted skin of alligator (*Alligator mississippiensis*). Upper Saint John's River, Florida. G. Brown Goode.
16810. Tanned skin of alligator. Upper Saint John's River, Florida. G. Brown Goode.

[1] See garments in Ethnological series.

Prepared from reptile skins.

Alligator leather.

25283. Tanned skin of alligator (*Alligator mississippiensis*). Upper Saint John's River, Florida. G. Brown Goode.

24791. Tanned skin of alligator (*Alligator mississippiensis*). "Russet finish." Schayer Bros., Boston, Mass.

24796. Cigar-case, made from skin of alligator (*Alligator mississippiensis*). "Russet finish." Schayer Bros., Boston, Mass.

24792. Lady's satchel, made from skin of alligator (*Alligator mississippiensis*). "Russet finish." Schayer Bros., Boston, Mass.

24795. Match-case, made from skin of alligator (*Alligator mississippiensis*). "Russet finish." Schayer Bros., Boston, Mass.

24793. Slippers, made from the skin of alligator (*Alligator mississippiensis*). "Russet finish." Schayer Bros., Boston, Mass.

24794. Slippers, made from skin of alligator (*Alligator mississippiensis*). "Black finish." Schayer Bros., Boston, Mass.

26038. Riding-boots, made from skin of alligator (*Alligator mississippiensis*). H. & A. Mahrenholz, New York City.

Rattlesnake leather.

24797. Dressed skin of rattlesnake (*Crotalus durissus*). Big Coon, Ala. J. H. Henderson.

24799. Dressed skin of rattlesnake (*Crotalus durissus*). Big Coon, Ala. J. H. Henderson.

24798. Shoes made from skin of rattlesnake (*Crotalus durissus*). Big Coon, Ala. J. H. Henderson.

9043. Bow covered with skin of rattlesnake. Used by Flathead Indians. Fort Colville, W. T. Dr. J. T. Ghisslin, U. S. A.

Other snake leather.

26039. Boots made from skin of boa (*Boa constrictor*). H. & A. Mahrenholz, New York.

Prepared from fish-skins.

Leather prepared from scaled fish by Indians.

16091. Salmon-skins dressed as leather and used in making waterproof shirts and boots by Magemut Eskimo. Nunivak Island, Alaska. W. H. Dall.

10347. Parky, or upper garment, made from the skin of codfish (?). Nunivak Island, Alaska. W. H. Dall.

Eel leather, made for pigtails, queues, flail-thongs. Skins of eels (*Anguilla vulgaris*).

25285. Eel-skins. Market, Washington, D. C. G. Brown Goode.
These eel-skins are highly esteemed by the Virginia negroes as a cure for rheumatism.

Sturgeon leather.

26013. Tanned skin of sturgeon (*Acipenser rubicundus*). Wernich & Wandel, Waukegan, Ill.

Prepared from fish-skins.

Shark leather (shagreen used for coverings, and by the Alaska Indians for boot-soles).[1]

Leather waste.

Paper manufactured from waste.
Glue manufactured from waste. (See under 24.)
Prussian blue made from leather waste. (See under 30.)

21. Hair and wool.

Hair used in weaving and felting. (See under 8.)
Hair used for wigs and ornaments.

Human hair as an article of commerce, with specimens of switches and wigs, and also of the trade imitations of hair in jute, horsehair, &c.
Goat's wool as employed in manufacture of wigs and perukes.
Human scalp locks as Indian trophies.[2]
Scalps of animals as trophies.[2]

Hair and bristles used for brushes (embracing the commercial hair and bristles, assorted and unassorted, and specimens of the manufactured articles).

Hair of skunk, used for fine brushes.

29340. Gilders' and varnishers' brushes (black hair; flat). Miles Bros. & Co.
29341. " " " " " " "
29342. " " " " " " "
29343. " " " " " (round). "
29344. Dusting-brush (white hair; flat). "

Hair of bear used for varnishing-brushes.

29338. Varnish or dusting brush. Miles Brothers & Co.
29339. "Mottler" brush. "

Hair of American badger used for fine shaving, graining, gilding, and dust brushes.[3]
Hair of American badger (*Taxidea americana*) adapted to the manufacture of brushes.
Hair of squirrel, especially the tail, used in making fine artists' pencils.

29320. "Camel's-hair" varnish-brush. French style. Miles Brothers & Co.
29321. "Camel's-hair" coach-painters' color-brush. "

[1] See garments in Ethnological series.
[2] See specimens in the Ethnological division.
[3] The badger-hair brushes sold in America are almost exclusively manufactured from the hair of the European badger. The hair of the American badger is quite as well adapted to the purpose.

Hair and bristles used for brushes.

Hair of squirrel, especially the tail, used in making fine artists' pencils.

29322. "Camel's-hair" varnish or copying brush. English style. Miles Brothers & Co., New York.
29322. "Camel's-hair" gilders' brush. Miles Brothers & Co., New York.
29324–5. "Camel's-hair" lacquering brush. " "
29326. "Camel's-hair" pencil, quill handles. " "
29353. Series of scrolling and ornamenting brushes. " "

These brushes are made chiefly from the tail of the gray squirrel (*Sciurus carolinensis*), and are known to the trade as "camel's-hair" brushes.

Bristles of hog and peccary used in making coarse brushes for varnishing, scrubbing, &c.

26020. Series of bristles (black). B Nos. 1–12. William Wilkens & Co., Baltimore.
26021. " " " (white). B Nos. 1–13. " "
26026. " " " (yellow). B Nos. 1–12. " "
26027. " " " (red). B Nos. ½–11. " "
26028. " " " (black). D B Nos. ½–12. " "
26022. " " " (black). ("Casings") Nos. 1–12. " "
26023. " " " (natural black). ("Casings") Nos. 1–11. William Wilkens & Co.
26024. Series of bristles (white). ("Casings") Nos. 1–12. William Wilkens [& Co.
26025. " " " (white). Medium stiff, Nos. 1–12. "
26029. " " " (union). William Wilkens & Co.
26030. " " " (blue). "
26031. " " " (unbleached). "

Brushes made from bristles:

29327. Flat copying-brush, No. 1. Miles Brothers & Co.
29328. " " " No. 3½. "
29329. " " " No. 2. "
29330. " " " No. 2½. "
29331. " " " No. 3. "
29332. Round paint-brush, No. A $\frac{1}{0}$. "
29333. " " " No. A $\frac{2}{0}$. "
29334. " " " No. A 1. "
29335. " " " No. A 2. "
29336. " " " No. A 3. "
29337. Shaving-brush. "

Sheep's wool (on skin) used for blackboard-rubbers.[1]

Hair of deer and antelope (on skin) used by Indians for hair-brushes.[2]

Deer-hair brushes.

Brushes made from white hair in tail of deer (*Cariacus macrotis* and *C. virginianus*):

29354. Flat brush. 1 inch Miles Brothers & Co.
29355. " 1½ " "
29356. " 2 " "
29357. Round brush. "

[1] See exhibit in Educational Bureau.
[2] See Ethnological series.

Hair and bristles used for brushes.

Hair of horses, used for fly-brushes.

26032. Series of samples of horse-hair (dyed blue). William Wilkens & Co.
26033. " " " " " (dyed red). "
26034. " " " " " (dyed white). "

Ox-hair from the inside of cows' ears used for striping and lettering brushes.

29345–6–7–8–9–50. Fresco-painters' brushes, 1–6. Miles Brothers & Co.
29351. Series of ox-hair striping-pencils, sold as camel's-hair pencils. Miles Brothers & Co.

Hair used in other manufactures.

Bristles used in shoemakers' wax ends.
Bristles used in anatomical instruments.
Hair and bristles used in artificial flies. (See under B, 45.)
Hair of cattle used in strengthening mortar and plaster.

Hair used for stuffing.

Horse-hair, straight and curled, used for mattresses and cushions.
Refuse hair of beaver and musquash, cut from felting-hair, used for cushions.
(Down of rabbits used for cushions.)

Wool used as a medium for pigments.

Wool-flocking used in the manufacture of wall-paper, colored felts, and rubber cloth.

Chemical products.

Refuse human and other hair used in manufacture of prussiate of potash, with specimens of manufactured product.

22. Quills.

Quills of mammals.

Quills of American hedge-hog used by Indians in embroidering.

Quills of birds.

Quills of swan and turkey for engrossing-pens.
Quills of goose and eagle for writing-pens.
Quills of crow and duck for fine pens.
Quills used in making tooth-picks, fishing-floats, color-bottles, pencil-handles, needle-holders, &c.

23. Feathers.

Feathers used for clothing. (See under Furs, D 10.)

Feathers used for implements (including manufactured articles).

29528. Fan.

26596. Fan made from feathers of roseate spoonbill (*Platalea ajaja*). Mrs. C. E. Mott, Jacksonville, Fla.

26597. Fan made from feathers of white tern (*Sterna* sp.). Mrs. C. E. Mott, Jacksonville, Fla.

26598. Fan made from feathers of white crane (*Garzetta candidissima*). Mrs. C. E. Mott, Jacksonville, Fla.

26599. Fan made from feathers of blue heron (*Florida cærulea*). Mrs. C. E. Mott, Jacksonville, Fla.

26601–26605. Fan made from feathers of water-turkey (*Plotus anhinga*). Mrs. C. E. Mott, Jacksonville, Fla.

26602. Fan made from feathers of fish-crow (*Corvus ossifragus*) and blue heron (*Florida cærulea*). Mrs. C. E. Mott, Jacksonville, Fla.

26603. Fan made from feathers of wood ibis (*Tantalus loculator*) and parakeet (*Psittacus carolinensis*). Mrs. C. E. Mott, Jacksonville, Fla.

26605. Fan from miscellaneous feathers. Mrs. C. E. Mott, Jacksonville, Fla.

26812. Domestic turkey-feather dusters. 5 sizes. Chicago Feather-Duster Company. Chicago, Ill.

Feathers used for plumes and ornaments (including plumes, head-dresses, cockades, hat and dress trimmings, &c.)

26604. Bouquet made from feathers of Florida birds. Mrs. C. E. Mott, Jacksonville, Fla.

29529. Flowers made from feathers of Florida birds.

Feathers used in other manufactures.

Feathered arrow-shafts. (See under B, 18.)

Feathers used in making artificial flies.

Feathers used in manufacture of textile fabrics. (See under D, II, C.)

Down of birds.

Down of eider-duck used in bed-stuffing, with specimens of balls in which it is packed for transportation.

Down of other ducks.

Down of geese and swans used as stuffing for beds, and as electrical non-conductor in manufacture of philosophical instruments.

24. Gelatine and isinglass.

Gelatine.

Gelatine made from leather-shavings, bones, hoofs, and horns of bison, cattle, sheep, and other domestic animals, used in manufacture of glue, size, court-plaster, *papier glacé* for tracing, imitation glass, artificial flowers, and ornamental work, wrappings for confections, table-jelly (see under D 1), &c.

Glue.

25315. No. 1. Manufactured from horns and hoofs. Wm. H. Brown, Peabody, Mass.

25316. No. 2. Manufactured from horns and hoofs. Wm. H. Brown, Peabody, Mass.

Gelatine.

Size, or frozen glue.

25317–18. "A. A. E." Manufactured from horns and hoofs. Wm. H. Brown, Peabody, Mass.

Gelatines made from bone and ivory shavings.

Bird gelatine.

(Nests of esculent swallows (*Calocalia esculenta*, *C. fuciphaga*, *C. indifica*, &c.) exported from Indian Archipelago to China.)

Isinglass.

Isinglass (ichthyocolla), made from air-bladders and skins of fishes and used in the manufacture of fine glues and sizes, adhesive and court plasters, diamond cement, imitation glass, and table-jelly and confectionery (see under D 1, D), in refining wines and liquors, in adulterating milk, in fixing the luster of artificial pearls, and in lustering silk ribbons (embracing the dried bladders and the manufactured products) in their grades of "lyre," "heart-shaped," "leaf," and "book" isinglass.

Isinglass from sounds of cod and hake.

12123. Isinglass. (First quality.) Manufactured from sounds of cod, hake, &c. Cape Ann. Cape Ann Isinglass and Glue Company, Rockport, Mass.

12124. (Second quality.) Manufactured from sounds of hake, cod, &c. Cape Ann Isinglass and Glue Company, Rockport, Mass.

12126. Dried sound of cod (*Gadus morrhua*). Used in the manufacture of isinglass. George's Banks. Cape Ann Isinglass and Glue Company, Rockport, Mass.

12125. Dried sound of hake (*Phycis chuss*). Used in manufacture of isinglass. Bay of Fundy. Cape Ann Isinglass and Glue Company, Rockport, Mass.

16683. Sound of hake (*Phycis chuss*), used in the manufacture of isinglass. Portland, Me. H. Trefethern.

16684. Sound of hake (*Phycis chuss*), used in the manufacture of isinglass. Portland, Me. H. Trefethern.

25264. Isinglass. Manufactured from sounds of cod, hake, &c. Cape Ann Isinglass and Glue Company, Rockport, Mass.

25263. Air-bladder of cod (*Gadus morrhua*), used in manufacture of isinglass. Cape Ann Isinglass and Glue Company, Rockport, Mass.

25793. Isinglass made from skins of cod (*Gadus morrhua*). By a new method, by the Gloucester Isinglass and Glue Company. Wm. N. Le Paiz, agent, Boston, Mass.

25268. Air-bladder of "foreign crab" (species unknown), used in manufacture of isinglass. Cape Ann Isinglass and Glue Company, Rockport, Mass.

——. Air-bladder of foreign "sea trout" (an unknown fish), used in the manufacture of isinglass. East Indies. Cape Ann Isinglass and Glue Company, Rockport, Mass.

Isinglass.

Isinglass from sounds of cod and hake.

25794. Prepared glue made from skins of cod (*Gadus morrhua*). By Gloucester Isinglass and Glue Company. Wm. N. Le Paiz, agent, Boston, Mass.

25797. "Court-plaster" glue made from skins of cod (*Gadus morrhua*). By the Gloucester Isinglass and Glue Company. Wm. N. Le Paiz, agent, Boston, Mass.

25795. Glue made from skins of cod (*Gadus morrhua*). By Gloucester Isinglass and Glue Company. Wm. N. Le Paiz, agent, Boston, Mass.

20744. Dried tongues of fish (probably cod), used by Sitka Indians in making glue. Sitka, Alaska. J. G. Swan.

Isinglass from the squeteague family (*Sciænidae*), principally used by confectioners.

25265. Air-bladder of "beluga" (an unknown sciænoid fish), used in the manufacture of isinglass. Cape Ann Isinglass and Glue Company, Rockport, Mass.

25269. Air-bladder of hake (*Phycis chuss*), used in manufacture of isinglass. Cape Ann Isinglass and Glue Company, Rockport, Mass.

25312. Air-bladder of sciænoid fish, known to the trade as "tongue." East Indies. Cape Ann Isinglass and Glue Company, Rockport, Mass.

25267. Air-bladder of squeteague (*Cynoscion regalis*), used in manufacturing isinglass. Cape Ann Isinglass and Glue Company, Rockport, Mass.

12127. Dried sound of squeteague (*Cynoscion regalis*), used in the manufacture of isinglass. Long Island Sound. Cape Ann Isinglass and Glue Company, Rockport, Mass.

Isinglass.

12120. Isinglass made from sound of lake sturgeon (*Acipenser rubicundus*). Lake Erie. Schacht & Bros., Sandusky, Ohio.

25. FLEXIBLE MATERIALS DERIVED FROM INVERTEBRATES.[1]

Insect productions.

Silk-worm "gut" used in making leaders for fish-lines.

(Nest of Cayenne-ant (*Formica bispinosa*), used as a mechanical styptic.)

Spiders' web used as a mechanical styptic and for the cross-lines in optical instruments. (See, also, under D, 8).

Papier maché of hornets' nests used for gun-wadding.

Mollusk productions.

Byssus of mollusks (see under D, 8).

[1] See under Part II of the present catalogue.

26. Sponges.[1]

Specimens of American commercial sponges (with the different grades, and bleached sponges).

(Specimens of Mediterranean sponges.)

Surgical apparatus, probangs, aurilaves, "sponge-tents," and other instruments manufactured.

Spongeo-piline used as a substitute for poultices.

Sponges used in stuffing mattresses and cushions.

27. Oils and fats.

Mammal oils.

Bear-oil and bear-fat used as a cosmetic and in the manufacture of pomatums.

Dog-oil used in the manufacture of kid gloves.

Seal-oil, in its various grades, used for lubricating.

25059–60. Oil of seals (*Cystophora, Pagophylus, Pusa,* and *Phoca,* sp.). Newfoundland. Walter Grieve & Co., St. John's, N. F.

25061–3. Oil of seals (*Cystophora, Pagophilus, Pusa,* and *Phoca,* sp.). J. Munn & Co., Harbor Grace, N. F.

25979. Oil of harbor seal (*Phoca vitulina*). Capt. N. E. Atwood, Provincetown, Mass.

Sea-elephant oil.

25057. Oil of sea-elephant (*Macrorhinus,* sp.). Haven, Williams & Co., New London, Conn.

25058. Oil of sea-elephant (*Macrorhinus leonina*). South Georgia Island. Haven, Williams & Co., New London, Conn.

Sea-lion oil.

Manatee-oil.

Dugong-oil.

Oil and fat from domestic animals, (tallow, suet, lard, oil used in lamps, for lubricating, and neat's-foot oil used in dressing leather; also, manufactured into various substances (see D, 30), and tallow candles and night-lights.)

Oil from body of whales, grampuses, and porpoises used in the arts, for lubricating, painting, &c.

25054. Oil of humpback whale (*Megaptera,* sp.). Atlantic Ocean. Haven, Williams & Co., New London, Conn.

25055. Oil of right-whale. Haven, Williams & Co., New London, Conn.

25056. Oil of sulphur-bottom whale (*Sibbaldius,* sp.). Haven, Williams & Co., New London, Conn.

26038. Oil of beluga (*Delphinapterus catodon*). Renfrew & Co., Quebec.

24894. Crude Arctic whale oil. George Delano & Co.

24895. Bleached "winter" sperm-oil, from the sperm-whale (*Physeter macrocephalus*). George Delano & Co., New Bedford, Mass.

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[1] See under Part II of the present catalogue.

Mammal oils.

Oil from whales and porpoises.

25743. Oil of grampus (*Grampus griseus*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.
25067. Oil of grampus (*Grampus griseus*). Extracted by exposure to the sun. Capt. Caleb Cook, New Bedford, Mass.
25067. Double refined oil of grampus (*Grampus griseus*). Cape Cod. Capt. Caleb Cook, Provincetown, Mass.
25737. "Pressed" oil of grampus (*Grampus griseus*). E. E. Small, Provincetown, Mass.
25967. Oil of cowfish. Capt. N. E. Atwood, Provincetown, Mass.
25958. Oil of porpoise. Marvin Brothers & Bartlett, Portsmouth, N. H.
25738. Oil of porpoise (*Lagenorhynchus leucopleurus*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.
25974. Oil of porpoise (*Delphinus erebennus?*). Capt. N. E. Atwood, Provincetown, Mass.
12116. Oil of harbor porpoise (*Phocæna americana*). Prepared by the Passamaquoddy Indians. Eastport, Me. Dr. E. Palmer.
12115. Oil of harbor porpoise (*Phocæna americana*). Eastport, Me. Dr. E. Palmer.
26037. Oil of harbor porpoise (*Phocæna americana*). Passamaquoddy Bay, Maine. George H. Peabody, Eastport, Me.
25739. Oil of snuffer (*Phocæna americana*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.
24893. Crude "body"-oil from sperm-whale (*Physeter macrocephalus*). George Delano & Co., New Bedford, Mass.
26076. Oil of black-fish (*Globicephalus intermedius*). North American Oil Company, Wellfleet, Mass.
25741. Oil of black-fish (*Globicephalus melas*). E. E. Small, Provincetown, Mass.
25064. Refined oil of black-fish (*Globicephalus intermedius*). Cape Cod. Capt. Caleb Cook, Provincetown, Mass.
25065. Double refined oil of black-fish (*Globicephalus intermedius*). Cape Cod. Capt. Caleb Cook, Provincetown, Mass.
25977. Oil from body of black-fish (*Globicephalus melas*). Capt. N. E. Atwood, Provincetown, Mass.

Black-fish and porpoise-jaw oil used in lubricating fine machinery, watches, clocks, and guns, with specimens of blubber.

25742. Oil from head of black-fish (*Globicephalus melas*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.
25968. Oil from head of black-fish (*Globicephalus melas*). Sold as "porpoise-jaw oil." Capt. Caleb Cook, Provincetown, Mass.
25984. Oil from head of black-fish (*Globicephalus melas*). Sold as "porpoise-jaw oil." Capt. N. E. Atwood, Provincetown, Mass.
25969. Oil from jaw of porpoise. Capt. N. E. Atwood, Provincetown, Mass.
26035–6. Oil from head of harbor-porpoise (*Phocæna americana*). Passamaquoddy Bay. Geo. A. Peabody, Eastport, Me.
26075. Head-oil of black-fish (*Globicephalus intermedius*). North American Oil Company, Wellfleet, Mass.
26035. Jaw-oil of porpoise (*Phocæna americana*). Passamaquoddy Bay. G. A. Peabody, Eastport, Me.
25066. Jaw-oil of black-fish (*Globicephalus intermedius*). Cape Cod. Capt. Caleb Cook, Provincetown, Mass.

Mammal oils.

Black-fish and porpoise jaw oil, &c.

26042. "Jaw-marrow" of black-fish (*Globicephalus melas*). E. E. Small, Provincetown, Mass.

25040. Blubber of black-fish and grampus (*Globicephalus melas* and *Grampus griseus*). E. E. Small, Provincetown, Mass.

26041. "Melon" blubber of black-fish (*Globicephalus melas*). E. E. Small, Provincetown, Mass.

25069. "Melon blubber" of black-fish (*Globicephalus intermedius*). Cape Cod. Capt. Caleb Cook, Provincetown, Mass.

Grampus-oil used for lubricating fine machinery.

25068. "Melon" blubber of grampus (*Grampus griseus*). Cape Cod. Capt. Caleb Cook, Provincetown, Mass.

25733. Oil from head of grampus (*Grampus griseus*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.

Sperm-oil used in lamps, for lubricating, as an emollient in medicine, for lip-salves, and in the manufacture of spermaceti.

24892. Crude "head" sperm-oil from sperm-whale (*Physeter macrocephalus*). George Delano & Co., New Bedford, Mass.

25745. Crude sperm-oil from sperm-whale (*Physeter macrocephalus*). E. E. Small, Provincetown, Mass.

Spermaceti, with specimens of candles.

24896. Plain refined spermaceti from sperm-whale (*Physeter macrocephalus*). George Delano & Co., New Bedford, Mass.

24897. Spermaceti candles. George Delano & Co., New Bedford, Mass.

Manufactured glycerines, used as a preservative and antiseptic, as a cosmetic, as an emollient, as a substitute for cod-liver oil, in the manufacture of nitro-glycerine, dynamite, dualine, lithofracteur, coloniamite, and other explosives, soap, &c.

26798. Pure inodorous glycerine. Manufactured by H. Bower, Philadelphia. John Wyeth & Bro., Philadelphia.

Manufactured stearines, with candles and other manufactured articles.

Soaps manufactured from mammal-oil, soda-soaps (hard, toilet, and resin soaps), potash-soaps (washing, shaving, and soft soaps), diachylon plaster, &c.

Butter made from milk of cows, goats, and horses.

Oleomargarines, with specimens of imitation butter.

Brains of buffalo used in tanning by Indians.

Bird-oils.

(Oil of petrels and other sea-birds used by Eskimos and in the Azores for lamp-oil.)

Bird-oils.

Goose-oil used by watch-makers, and as an emollient.

Oil of pigeon (*Ectopistes migratorius*), used as food by Indians and frontiersmen.

Reptile-oils.

Alligator-oil manufactured in Florida.

24898. Oil of alligator (*Alligator mississippiensis*). Prepared by Col. L. A. Harden, Jacksonville, Fla. Dr. W. H. Babcock.

Turtle-oil made from turtle-eggs, used in dressing leather and in manufacture of soap.

Rattlesnake and other snake oils.

Fish-oils.

Sun-fish oil used by fishermen for cure of rheumatism.

25724. Oil from liver of sun-fish (*Mola rotunda*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.

25959. Oil from liver of sun-fish (*Mola rotunda*). Marvin Brothers & Bartlett, Portsmouth, N. H.

25966. Oil from liver of sun-fish (*Mola rotunda*). Capt. N. E. Atwood, Provincetown, Mass.

Oil from liver of the cod family.

25982. Oil from liver of cod-fish (*Gadus morrhua*), crude. Capt. N. E. Atwood, Provincetown, Mass.

25960. Liver-oil of cod-fish (*Gadus morrhua*). Marvin Brothers & Bartlett, Portsmouth, N. H.

26550. Oil from liver of cod-fish (*Gadus morrhua*). Herbert M. Rodgers & Co., 11 Fulton Market, New York.

26551. Oil from liver of cod-fish (*Gadus morrhua*). Herbert M. Rodgers & Co., New York.

26707. Pure cod-liver oil. Prepared for medicinal use only, by Marvin Brothers, Portsmouth, N. H. John Wyeth, Philadelphia.

25985. Medicinal oil from livers of cod-fish (*Gadus morrhua*). Capt. N. E. Atwood, Provincetown, Mass.

25961. Stearine from liver-oil of cod-fish (*Gadus morrhua*). Marvin Brothers & Bartlett, Portsmouth, N. H.

25970. Oil from liver of cusk (*Brosmius vulgaris*). Capt. N. E. Atwood, Provincetown, Mass.

25736. Oil from liver of hake (*Phycis chuss*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.

25732. Oil from liver of haddock (*Melanogrammus æglefinus*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.

25978. Oil from liver of haddock (*Melanogrammus æglefinus*). Capt. N. E. Atwood, Provincetown, Mass.

25971. Oil from liver of pollock (*Pollachiuus carbonarius*). Capt. N. E. Atwood, Provincetown, Mass.

25740. Oil from liver of pollock (*Pollachiuus carbonarius*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.

Fish-oils.

Herring-oil.

White-fish oil.

Sturgeon-oil.

Menhaden-oil used in currying leather, in rope making, for lubricating, for adulterating linseed-oil, as a paint-oil, and exported to Europe for use in the manufacture of soap and for smearing sheep.

26030. Oil of menhaden (*Brevoortia tyrannus*). Geo. W. Miles, Milford, Conn.

25744. Oil of pogie or menhaden (*Brevoortia tyrannus*), kettle-rendered. E. E. Small, Provincetown, Mass.

26077. Oil of pogie or menhaden (*Brevoortia tyrannus*). North American Oil Company, Wellfleet, Mass.

Oil of other fishes.

25973. Oil of horse-mackerel (*Orcynus secundidorsalis*). Capt. N. E. Atwood, Provincetown, Mass.

12117. Oil of herring (*Clupea harengus*). Capt. U. S. Treat, Eastport, Me.

12118. Oil from lake sturgeon (*Acipenser rubicundus*). Lake Erie. Schacht & Bros., Sandusky, Ohio.

25980. Oil from liver of mackerel-shark (*Isuropsis Dekayi*). Capt. N. E. Atwood, Provincetown, Mass.

25975. Oil from liver of thresher-shark (*Alopias vulpes*). Capt. N. E. Atwood, Provincetown, Mass.

25956. Oil from liver of dog-fish (*Squalus americanus*). Marion Bros. & Bartlett, Portsmouth, N. H.

25981. Oil from liver of dog-fish (*Squalus americanus*). Capt. N. E. Atwood, Provincetown, Mass.

25957. Oil from liver of skates (*Raia laevis*, &c.). Marion Bros. & Bartlett, Portsmouth, N. H.

25975. Oil from liver of cramp-fish (*Torpedo occidentalis*). Capt. N. E. Atwood, Provincetown, Mass.

25735. Oil from liver of cramp-fish (*Torpedo occidentalis*). E. E. Small, Provincetown, Mass.

26978. Sword-fish oil. Capt. N. E. Atwood, Provincetown, Mass.

26979. Mackerel-oil. " "

26980. Skate-oil. " "

26981. Halibut-oil. " "

Oulachan oil used by Indians of Northwest coast for food and illumination.

Soaps made from fish-oil.

28. Perfumes.

Mammal perfumes.

Musk of musk-ox.

Musk of the musquash.

Castoreum of the beaver, including the various commercial grades, the Canadian, Hudson's Bay, and Russian castoreum, and specimens of castorine.

26037. Scent-glands of beaver (*Castor canadensis*). Nebraska. E. R. Squibb, M. D., Brooklyn, N. Y.

Mammal perfumes.

Hyraceum of the daman (*Hyrax capensis*).

Ambergris of sperm-whale, with specimens of ambreine.

26894. Ambergris (commercial). Weeks Potter, Boston.

Reptile perfumes.

Musk of alligator.

Oil of hawksbill and loggerhead turtles, used in perfumery.

29. Coloring materials.

Derived from mammals.

Bone-black.

Ivory-black (*noire d'ivoire*), used in fine painting, and in the manufacture of bank-note ink.

Prussiates, prussian blue, ferrocyanide of potassium, made from hoofs and refuse human and other hair.

26093. Red prussiate of potassa (*Potassium ferrocyanide*). E. R. Squibb, M. D., Brooklyn, N. Y.

26094. Yellow prussiate of potassa (*Potassium ferrocyanide*). E. R. Squibb, M. D., Brooklyn, N. Y.

26794. Yellow prussiate of potash. Manufactured by H. Bower, Philadelphia. John Wyeth, Philadelphia.

Gall of animals used in dyeing.

Dung of animals used in calico-printing.

Hæmatin made from blood, and used in turkey-red dyeworks, and for the red liquor of printers.

Wool-flocking (see under D, 21).

Derived from birds.

Shell of eggs used for white pigment.

Series of murexides or purpurate of ammonia dyes, made from guano.

26065. Murexid. Prepared by E. Merck, Darmstadt. E. R. Squibb, M. D., Brooklyn, N. Y.

Derived from fishes.

Essence d'Orient, or fish-scale pearl, used as a pigment.

26893. Essence d'Orient. Introduced for comparison. Gustave Bossange, Paris.

(Gall of carp, used in Turkey as a green paint and in staining paper.)

Derived from insects.

(Cochineal dye, from *Coccus cacti* of Mexico, used in manufacture of rouge, of carmine, and lake pigments, and in coloring tinctures.)

26064. Honduras silver cochineal. E. R. Squibb, Brooklyn, N. Y.

Derived from insects.

Canadian cochineal.
(Kermes and other cochineals of commerce, *Coccus ilicis.*)
Lac dye and lac lake, from *Coccus lacca*, *C. polonicus*, *C. uva-ursi*, and *Ophis fabæ.*
Dye prepared from bed-bug (*Cimex lectularius*).
(Dye prepared from *Trombidium*, in Guinea and Surinam.)
Nut-galls produced by insects, and used in tanning for black dyes, for woolen cloth, silk, and calico, and in manufacture of ink and gallic and pyrogallic acid, employed in photography.

Derived from mollusks.[1]

(*Sepia* from *Sepia officinalis.*)
Purple dyes from gasteropods, *Murex*, *Purpura*, &c.
Purple dyes from nudibranch mollusks.

30. CHEMICAL PRODUCTS AND AGENTS EMPLOYED IN ARTS AND MEDICINES.

Derived from mammals.

Secretion of skunk.
Album græcum of dogs used as a depilatory in tanning hides.
Albumen of blood, employed in sugar-refineries, in certain cements and pigments, and as an antidote and emollient.
Dung, used in calico-printing.
Gall of animals, used in mixing colors, in fixing the lines of crayon and pencil drawings, in preparing the surface of ivory for painting, in removing grease, and in medicine.
Pepsine and pancreatin, prepared from stomach of hogs and calves.

26796. Saccharated pepsin. John Wyeth & Bro., Philadelphia.
26795. Pancreatin, saccharated. " "
25964. Saccharine pepsin. E. Schaffer, Louisville, Ky.
25963. Dry pepsin (concentrated). E. Schaffer, Louisville, Ky.
25962. Pure pepsin. E. Schaffer, Louisville, Ky.
29262. Acid phospho-lactate or milk-phosphate. Prepared directly from milk, by Gail Borden & Co. New York Condensed Milk Company, New York.

Derived from insects.

Coccinella, used as remedy for toothache.
(Trehala, made from nests of beetles (*Larinus nidificans*), of East Indies, and used for a substitute for tapioca.)
Formic acid.
Carbazotic acid and its derivatives, made from sewing-silk scraps, and used as a substitute for quinine.

[1] See in Part II of the present catalogue.

Derived from insects.

Beeswax, used in manufacture of candles, cerates, plasters, and artificial flowers, in modeling and casting, and in medicine.

Honey, used as a preservative, a food, and in medicine as an aperient and demulcent.

19076. Sugar made of cane-lice. Prepared by the Cooyuwee Indians, Pyramid Lake, Nevada. Stephen Powers.

(Wax, used in Chinese pharmacy, secreted by the *Coccus pehlah*.)

(*a'*. Manna from the *Tamarix mannifera*, used as food, and in medicine as a purgative.

b'. Cedar manna from Mount Lebanon, from *Pinus cedrus*.

c'. Arabian manna, of *Hedysarum alliagi*.)

(Eye-powder, made by Chinese from the Telini fly (*Mylabris cichorii*) of India.)

Derived from mammals.

(Koumiss, a fermented liquor, prepared from mare's and cow's milk, and employed in medicines.)

Phosphorus, prepared from bones, with specimens of matches, vermin poisons, and other products.

Vaccine limph, derived from cows.

Ammonia, prepared from bones and horn.

Sal ammoniac, prepared from bones and dung.

Prussiates, prepared from hoof, horn, and leather waste, dried blood, hair, and wool, with specimens of blue cyanide of potassium. (See under Coloring Materials.)

Lime from bones and bone phosphates. (See, also, under 32.)

Punk and tinder, made from droppings of camel and bison.

Animal charcoal, used as a decolorizer.

Derived from birds.

Albumen of eggs, used in photography, in clarifying liquors, by physicians as emollients and antidotes, and by apothecaries in suspending oils and other liquids in water.

Egg-shells, employed as an antacid.

Derived from reptiles.

Crotalin of rattlesnake and copperhead.

(*Scincus officinalis* of Egypt, used by European practitioners as sudorific and stimulant.)

Derived from fishes.

Propylamine, made from fish-brine.

26066. Propylamine (manufactured by E. Merck, Darmstadt). E. R. Squibb, M. D., Brooklyn, N. Y.

Derived from fishes.

(Intestines of grayling, used by Laplanders as a substitute for rennet.)

Skins of eels, used by negroes for rheumatism.

Derived from insects.

Vesicatory preparations from American beetles, *Cantharis cinerea* and *C. vittata.*

Vesicatory preparations derived from foreign beetles, cantharides or Spanish flies (*Cantharis vesicatoria*), and other species, and substitutes, *Mylabris cichorii*, *Cercoma Schæfferi*, *Meloe*, sp., var., &c.

Vesicatory preparations from American spiders, such as *Tegenaria medicinalis.*

Gall-nuts, used in medicine (see under 29).

Derived from crustacea.

Salve-bug of fishermen of Banks (*Caligus curtus*), parasite on cod-fish.

Crabs' eyes, or concretions from stomach of astacus, used as an antacid.

Derived from worms.

American leech (*Macrobdella decora*), used in surgery.

(European leech (*Hirudo medicinalis*), introduced into America.)

(African leech (*Hirudo trochina*), introduced.)

Leeches used as barometers.

Derived from mollusks.

(Cuttle-fish bone of *Sepia officinalis.*) (See under D, III, H.)

Calcined shells, used for building-lime and in manufacture of dentifrices and enamel. (See under D, III, H.)

Derived from radiates.

a. Limes, derived from calcining coral and coral rock.

Derived from protozoans.

Burnt sponge, formerly used in medicine.

Infusorial earth and its applications. (See above under K.)

31. Fertilizers.

Natural guanos.

Bat guano from caves.

Bird guano from oceanic islands.

Artificial guanos.

Menhaden guano.

Series of preparations illustrating the manufacture of soluble Pacific guano. Soluble Pacific Guano Company, Wood's Holl, Mass.[1]

26104. Crude South Carolina phosphate.
25213, 26103. Crushed South Carolina phosphates.
26102. Ground South Carolina phosphate.
26100. Crude Navassa phosphate. Navassa Island, W. I.
26101. Sicily sulphur, used in manufacture of sulphuric acid, used in factory.
26099. Stassfurth kainite, used in preservation of scrap.
26095. Crude menhaden scrap.
26097. Menhaden scrap, dried by the Hogle patent drying-machine.
26095. Soluble Pacific guano (unscreened).
26098. Soluble Pacific guano (screened).

Other preparations.[1]

26062. Island guano. Geo. W. Miles, Milford, Conn.
26061-3. Ammoniated bone superphosphate. Geo. W. Miles, Milford, Conn.
22246. Leopoldshall kainite. Winfield S. Dunan, Baltimore, Md.

Dried meat and blood.

Dried blood.

22239. Black dried blood. Contains 16 per cent. ammonia. Winfield S. Dunan, Baltimore, Md.
22240. Black blood-dust. Contains 12 per cent. ammonia. Winfield S. Dunan, Baltimore, Md.
22241. Red blood-dust. Contains 14 per cent. of ammonia. Winfield S. Dunan, Baltimore, Md.
22242. Mixed dried blood. Contains about 13 per cent. of ammonia. Winfield S. Dunan, Baltimore, Md.
22243. Blood, bone, and meat tankage. Contains about 9.50 per cent. of ammonia and 24 per cent. bone-phosphate of lime. Winfield S. Dunan, Baltimore, Md.
22244. Azotin. Contains about 14 per cent. of ammonia, and is made from what are known as "butcher's cracklings"—the grease having been pressed out, the scrap is dried and ground. Winfield S. Dunan, Baltimore, Md.
22245. Sulphate of ammonia. Contains about 25 per cent. of ammonia. Winfield S. Dunan, Baltimore, Md.

Poudrettes.

Other animal fertilizers.

32. LIMES. (See under 30.)

33. OTHER MATERIALS NOT MENTIONED.

[1] An elaborate model of the works of the Soluble Pacific Guano Company of Wood's Holl, Mass., and Charleston, S. C., is on exhibition in the grounds of the Exposition.

SECTION E.

PROTECTION AND CULTURE.

I. INVESTIGATION.

1. Methods of the United States Fish Commission.

Methods of work.

Apparatus for collecting specimens. (See under B.)

Apparatus for physical research.

Appliances for working up results.

This should include a model of coast laboratory with all its fittings.

Photographs.[1]

401. Headquarters of the United States Fish Commission, Wood's Holl, Mass.

400. Little Harbor of Wood's Holl, Mass., with headquarters of U. S. Fish Commission.

399. Harbor of Wood's Hole, Mass., from the wharf of the Fish Commission laboratory.

398. Harbor of Wood's Holl, Mass., with U. S. Fish Commission fleet for 1871.

397. Village of Wood's Holl, Mass., with the Pacific Soluble Guano Company's Works.

404. Yacht "Mazeppa," employed in the service of the U. S. Fish Commission.

403. U. S. steamer "Blue Light" at the wharf of the U. S. Fish Commission, Wood's Holl, Mass.

402. Village of Wood's Holl, Mass., showing laboratory of U. S. Fish Commission.

Results of work.

1. Reports of the Commission.

(United States Commission of Fish and Fisheries. Part I.—Report on the condition of the sea-fisheries of the south coast of New England in 1871 and 1872. By Spencer F. Baird, Commissioner. With supplementary papers. Washington: Government Printing-Office. 1873. 8vo, xlvii, 852 pp., 40 pl., with 38 explanatory (to pl. 1–38). 1 folded map.)

I. Report of the Commissioner (S. F. Baird). pp. vii–xlvii.[2]

II. General plan of inquiries prosecuted. (1. Memoranda of inquiry relative to the food-fishes of the United States. 2. Questions relative to the food-fishes of the United States.) pp. 1–6.

[1] The photographs here enumerated were on exhibition. Many others are in the possession of the Commission.

[2] This portion, with general title-page (pp. i–xlvii), was issued in advance separately.

Results of work.

1. Reports of the Commission.

(United States Commission of Fish and Fisheries. Part I.)

III. Testimony in regard to the present condition of the fisheries, taken in 1871. pp. 7–72.

IV. Special arguments in regard to regulating the sea-fisheries by law. pp. 73–103.

V. Reports of State commissions in regard to regulating the sea-fisheries. pp. 104–124.

VI. Report of conference of the United States Commissioner with the commissioners of Rhode Island and Massachusetts, held October 5, 1871. pp. 125–131.

VII. Draught of law proposed for the consideration of, and enactment by, the legislatures of Massachusetts, Rhode Island, and Connecticut. pp. 132–134.

VIII. Miscellaneous correspondence and communications on the subject of the sea-fisheries. pp. 134–138.

IX. European authorities on the subject of regulating the fisheries by law. pp. 139–148.

X. Notices in regard to the abundance of fish on the New England coast in former times. pp. 149–172.

XI. Statistics of fish and fisheries on the south shore of New England. pp. 173–181.

XII. Supplementary testimony and information relative to the condition of the fisheries of the south side of New England, taken in 1872. pp. 182–195.

XIII. Pleadings before the senate committee on fisheries of the Rhode Island legislature, at its January session of 1872. pp. 196–227.

XIV. Natural history of some of the more important food-fishes of the south shore of New England, (viz: the Scup (*Stenotomus argyrops*), and the Blue-fish (*Pomatomus saltatrix*). pp. 228–252.

XV. Description of apparatus used in capturing fish on the sea-coast and lakes of the United States. pp. 253–274, with 19 (1–19) figs., and pl. (maps) xxxix and xl, and large folded map.

XVI. List of patents granted by the United States to the end of 1872 for inventions connected with the capture, utilization, or cultivation of fish and marine animals. pp. 275–280.

XVII. List of the sea-weeds or marine algæ of the south coast of New England. By W. G. Farlow, M. D. pp. 281–294.

XVIII. Report upon the invertebrate animals of Vineyard Sound and the adjacent waters, with an account of the physical character of the region. By A. E. Verrill. pp. 295–778, with pl. i–xxxviii.

Results of work.

1. Reports of the Commission.

(United States Commission of Fish and Fisheries. Part I.)

XIX. Catalogue of the fishes of the east coast of North America. By Theodore Gill. pp. 779–822.

XX. List of Fishes collected at Wood's Holl (between June 20 and October 4). By S. F. Baird. pp. 823–827.

XXI. Table of temperatures of the Little Harbor, Wood's Holl, Mass., from January 1, 1873, to December 31, 1873. pp. 828–831.

XXII. List of illustrations. p. 833.

XXIII. General index. pp. 835–852.

United States Commission of Fish and Fisheries. Part II.—Report of the Commissioner for 1872 and 1873. A.—Inquiry into the decrease of food-fishes. B.—The propagation of food-fishes in the waters of the United States. By Spencer F. Baird, Commissioner. With supplementary papers. Washington: Government Printing-Office. 1874.

Report of the Commissioner. (Table of contents precedes report.)

Appendix A.—The fisheries of the great lakes and the species of Coregonus or Whitefish.

I. Reports on the fisheries of the great lakes; the result of inquiries prosecuted in 1871 and 1872. By James W. Milner. (Table of contents on p. 77.)

II. Miscellaneous notes and correspondence relative to the Whitefish. pp. 79–88.

Appendix B.—The Salmon and the Trout (species of the *Salmo*). p. 89.

III. On the North American species of Salmon and Trout. By George Suckley, Surgeon United States Army (written in 1861). p. 91. Tabulated list of species, pp. 92–159.

IV. The Salmon of the Danube, or the Hucho (*Salmo hucho*), and its introduction into American waters. By Rudolph Hessel. p. 161.

V. Improvement in the Salmon-fisheries of Sweden. (Extract from the report of the Royal Swedish Intendant of Fisheries, 1868.) p. 166.

VI. Report of operations during 1872 at the United States hatching establishment on McCloud River, and on the California Salmonidæ generally, with a list of specimens collected. By Livingston Stone.

A. Introductory remarks. pp. 168–174.

B. The Salmonidæ of the Sacramento River. pp. 175–197.

C. Catalogue of natural-history specimens collected on the Pacific slope in 1872, by Livingston Stone, for the United States Fish Commission.

VII. Notes on the Salmon of the Miramichi River. By Livingston Stone; p. 216. Fragmentary notes. p. 217.

VIII. The Salmonidæ of Eastern Maine, New Brunswick, and Nova Scotia. By Charles Lanman. pp. 219–225.

IX. On the Salmon of Eastern North America, and its artificial culture. By Charles G. Atkins. (Table of contents on p. 336.) p. 226.

Results of work.

Reports of the Commission.

(UNITED STATES COMMISSION OF FISH AND FISHERIES. PART II.)

X. ON THE SALMON OF MAINE. By A. C. Hamlin. pp. 338–356.

XI. THE LAKE TROUTS. By A. Leith Adams, M. A., &c. p. 357.

XII. ON THE SPECKLED TROUT OF UTAH LAKE. By Dr. H. C. Yarrow, U. S. A., Surgeon and Naturalist, &c. pp. 358–363.

XIII. MISCELLANEOUS NOTES AND CORRESPONDENCE RELATIVE TO SALMON AND TROUT. pp. 364–378.

XIV. ADDITIONAL REPORTS RELATIVE TO THE HATCHING AND PLANTING OF THE PENOBSCOT SALMON. p. 380.

A. New Hampshire. p. 380.

B. New Jersey. p. 381.

C. Pennsylvania. p. 382.

D. Ohio. p. 382.

E. Wisconsin. p. 383.

APPENDIX C.—THE SHAD AND ALEWIFE (species of *Clupeidæ*). p. 385.

XV. LETTERS REFERRING TO EXPERIMENTS OF W. C. DANIELL, M. D., IN INTRODUCING SHAD INTO THE ALABAMA RIVER. pp. 386, 387.

XVI. LETTERS REFERRING TO SHAD IN THE RIVERS TRIBUTARY TO THE GULF OF MEXICO. pp. 388–391.

XVII. REPORT OF A RECONNAISSANCE OF THE SHAD-RIVERS SOUTH OF THE POTOMAC. By H. C. Yarrow, M. D. pp. 396–401.

XVIII. REPORT ON SHAD-HATCHING OPERATIONS. pp. 403–417.

XIX. REPORT ON THE PROPAGATION OF THE SHAD (*Alosa Sapidissma*), AND ITS INTRODUCTION INTO NEW WATERS BY THE UNITED STATES COMMISSIONER, IN 1873. By James W. Milner. pp. 419–450.

XX. NOTES ON THE NATURAL HISTORY OF THE SHAD AND ALEWIFE. pp. 452–462.

APPENDIX D.—FISH CULTURE (THE HISTORY, THEORY, AND PRACTICE OF FISH-CULTURE). pp. 463, 464.

XXI. THE HISTORY OF FISH-CULTURE. p. 465.

A. The history of fish-culture in Europe, from its earlier record to 1854. By Jules Haime. pp. 465–492.

B. Report on the progress of pisciculture in Russia. By Theodore Soudakèviez. pp. 493–512.

C. Report on the state of pisciculture in France and the neighboring countries. By M. Bouchon-Brandley, assistant secretary of the College of France. pp. 513–522.

D. The progress of fish-culture in the United States. By James W. Milner. pp. 523–558.

E. Alphabetical list of American fish-culturists and of persons known as being interested in fish-culture. pp. 558–566.

Results of work.

1. Reports of the Commission.

(United States Commission of Fish and Fisheries. Part II.)

XXII. Papers relating to practical fish-culture.

A. Method of treating adhesive eggs of certain fishes, especially of the Cyprinidæ, in artificial propagation. By Rudolph Hessel. pp. 567–570.

B. On the so-called "dry" method of impregnating spawn. By Alexander Stenzel, inspector of fisheries in Silesia, Germany. pp. 571–574.

C. Fish-culture in salt or brackish waters. By Theodore Lyman, Fish Commissioner of Massachusetts. pp. 575–577.

D. Descriptions of improved apparatus in fish-hatching. pp. 578–587.

Appendix E.—Obstructions to the upward movement of fishes in streams, and the remedy. pp. 588, 589.

XXIII. On fish-ways. By Charles G. Atkins. pp. 591–615.

XXIV. On obstructions to the ascent of fish in certain rivers. p. 617.

A. Obstructions in the rivers of Maine. By E. M. Stillwell. pp. 617–621.

B. Obstructions in the tributaries of Lake Champlain. By M. C. Edmunds. pp. 622–627.

C. Obstructions in some of the rivers of Virginia. By M. McKennie. pp. 628–629.

D. Character of the streams on the northern shore of Lake Michigan. By J. F. Ingalls. pp. 630–632.

E. Characters of some of the northern tributaries of Lake Michigan. By James W. Milner. pp. 632–634.

Appendix F.—Natural History. pp. 635–636.

XXV. The Crustacea of the fresh waters of the United States. By Sidney I. Smith.

A. Synopsis of the higher fresh-water Crustacea of the Northern United States. pp. 637–657.

B. The crustacean parasites of the fresh-water fishes of the United States. pp. 661–665.

XXVI. Synopsis of the North American fresh-water Leeches. By A. E. Verrill. pp. 666–689.

XXVII. Sketch of the invertebrate fauna of Lake Superior. By Sidney I. Smith. pp. 690–706.

XXVIII. Food of fresh-water fishes. By Sidney I. Smith. pp. 708–709.

XXIX. Natural and economical history of the Gourami (Osphromenus goramy). By Theodore Gill. p. 710.

A. Natural history. pp. 710–717.

B. The introduction and attempts to introduce the gourami into foreign countries. pp. 718–726.

C. Rules for transportation and introduction. p. 727.

XXX. Notes on the Grayling (*Thymallus*) of North America. By James W. Milner. pp. 729–742

Appendix G.—Miscellaneous Papers. p. 743.

Results of work.

1. Reports of the Commission.

(UNITED STATES COMMISSION OF FISH AND FISHERIES. PART II.)

XXXI. TEMPERATURE IN THE GULF OF MEXICO, FROM RECORDS OF THE UNITED STATES COAST SURVEY. pp. 745–748.

XXXII. CORRESPONDENCE WITH COMPANIES RELATIVE TO FACILITIES IN TRANSPORTATION, ETC. pp. 749–756.

XXXIII. REPORTS OF SPECIAL CONFERENCES WITH AMERICAN FISH-CULTURISTS' ASSOCIATION AND STATE COMMISSIONERS OF FISHERIES. p. 757.

A. Meeting at Boston, June 13, 1872. pp. 757–762.

B. Meeting at New York, October 17, 1872. pp. 763–773.

XXXIV. BIBLIOGRAPHY OF REPORTS OF FISHERY COMMISSIONS. By Theodore Gill. pp. 764–773.

A. Names of Commissioners. p. 774.

B. Bibliography of reports. pp. 775–784.

LIST OF ILLUSTRATIONS. pp. 785–790.

GENERAL INDEX. p. 791.

UNITED STATES COMMISSION OF FISH AND FISHERIES. PART III.—REPORT OF THE COMMISSIONER FOR 1873–4 AND 1874–5. A.—INQUIRY INTO THE DECREASE OF THE FOOD-FISHES. B.—THE PROPAGATION OF FOOD-FISHES IN THE WATERS OF THE UNITED STATES. By Spencer F. Baird, Commissioner. Washington: Government Printing-Office. 1876.

APPENDIX A.—SEA-FISHERIES AND THE FISHES AND INVERTEBRATES USED AS FOOD.

I. HISTORICAL OBSERVATIONS ON THE CONDITION OF THE FISHERIES AMONG THE ANCIENT GREEKS AND ROMANS AND THEIR MODE OF SALTING AND PACKING FISH. By J. K. Smidlo. pp. 1, 2.

II. STATISTICS OF THE MOST IMPORTANT FISHERIES OF THE NORTH ATLANTIC. By Carl Dambeck. pp. 3–24.

III. ON THE FISHERIES OF NORWAY. pp. 24–30.

IV. STATISTICAL DATA REGARDING THE SWEDISH FISHERIES. pp. 31–34.

V. ACCOUNT OF THE FISHERIES AND SEAL-HUNTING IN THE WHITE SEA, THE ARCTIC OCEAN, AND THE CASPIAN SEA. By Alexander Schultz. pp. 35, 96.

VI. THE NORWEGIAN HERRING-FISHERIES. By A. J. Breck and A. Fadderdin. pp. 97–122.

VII. PRELIMINARY REPORT FOR 1873-'74 ON THE HERRING AND THE HERRING-FISHERIES ON THE WEST COAST OF SWEDEN. By Axel Vilhelm Springman. pp. 123–168.

VIII. THE HALIBUT FISHERIES OF THE UNITED STATES. By Lieut. P. De Broca. pp. 169–172.

IX. THE FISHING VILLAGES SNIKKERSTUN AND SKOLTERUP, AND THE COLLECTION OF FISHING IMPLEMENTS EXHIBITED BY THEM AT ELSINORE, DENMARK, DURING THE SUMMER OF 1872. pp. 173–182.

X. ON THE HERRING AND ITS PREPARATION AS AN ARTICLE OF TRADE. By Hyalmar Widigner. pp. 183–192.

XI. NEW CONTRIBUTIONS TO THE HERRING QUESTION—THE DISPUTE BETWEEN AXEL BŒCK AND OSSIAN SARS REGARDING THE NORWEGIAN SUMMER HERRING—SARS' RECENT OBSERVATIONS AND HIS NEW THEORY ON THE MIGRATION OF THE HERRING. pp. 193–194.

Results of work.

1. Reports of the Commission.

(United States Commission of Fish and Fisheries. Part III.)

XII. On the spawning and development of the Cod-fish. By Prof. C. O. Sars. pp. 195–222.

XIII. The Norwegian Lobster fishery and its history. By Axel Broeck. pp. 223–252.

XIV. Transportation of Lobsters to California. pp. 253–257.

XV. On the artificial propagation of the Lobster. pp. 258–266.

XVI. On the Oyster industries of the United States. By Lieut. P. De Broca. pp. 267–320.

Appendix B.—The river fisheries. pp. 321–322.

XVII. The propagation and distribution of the Shad. pp. 323–350.

XVIII. Report of the Triana trip. By J. W. Milner. pp. 351–362.

XIX. On the transportation of Shad for long distances. pp. 363–371.

XX. Report of operations in California in 1873. By Livingston Stone. pp. 372–427.

XXI. Hatching and distribution of California Salmon. pp. 428–436.

XXII. Report of operations during 1874 at the United States Salmon-hatching establishment on the McCloud River, California. By Livingston Stone. pp. 437–476.

XXIII. Correspondence relating to the San Joaquin River and its fishes. pp. 477–484.

XXIV. The Atlantic Salmon (*Salmo Salar*). By A. G. Atkins. pp. 485–539.

Appendix C.—Fish-culture, relating more especially to species of (*Cyprinidæ*). pp. 540.

XXV. Notes on pisciculture in Kiang Si. By H. Kopsch. pp. 543–548.

XXVI. On the culture of the Carp. pp. 549–558.

XXVII. The Gold Orfe (*Cyprinus orfus*). pp. 559–562.

XXVIII. Directions for using tables for recording the propagation and distribution of fish. pp. 563–568.

Appendix D.—The restoration of the inland fisheries. pp. 569–570.

XXIX. Fisheries and fishing laws in Austria and the world in general. By Carl Peyrer. pp. 571–680.

XXX. How can our lakes and ponds be stocked with fish in the shortest possible time? By Mr. Von dem Borne. pp. 681–684.

Appendix E.—Natural History. pp. 685–686.

XXXI. Preliminary report on a series of dredgings made on the United States Coast Survey steamer Bache in the Gulf of Maine. By A. S. Packard, jr., M. D. pp. 687–690.

XXXII. List of the marine Algæ of the United States. By W. G. Farlow. pp. 691–718.

Results of work.

1. Reports of the Commission.

(UNITED STATES COMMISSION OF FISH AND FISHERIES. PART III.)

XXXIII. SECTION ON THE ORGANS OF REPRODUCTION AND THE FECUNDATION OF FISHES AND ESPECIALLY OF EELS. By Dr. Syvski. pp. 719–734.

XXXIV. THE FOOD AND MODE OF LIVING OF THE SALMON, THE TROUT, AND THE SHAD. By D. Barfurth. pp. 735–758.

UNITED STATES COMMISSION OF FISH AND FISHERIES. PART IV.—REPORT OF THE COMMISSIONER FOR 1875–1876. A.—INQUIRY INTO THE DECREASE OF THE FOOD-FISHES. B.—THE PROPAGATION OF FOOD-FISHES IN THE WATERS OF THE UNITED STATES. Washington: Government Printing-Office. 1878. 8vo., pp. ix, 50, 1029, plates vi (Hist. of whale fishery).

I. REPORT OF THE COMMISSIONER.

A.—GENERAL CONSIDERATIONS.

1. INTRODUCTORY REMARKS. p. 1.

B.—INQUIRY INTO THE DECREASE OF FOOD-FISHES.

2. INVESTIGATIONS AND OPERATIONS OF 1875. p. 4.

3. INVESTIGATIONS AND OPERATIONS OF 1876. p. 7.

C.—THE PROPAGATION OF FOOD-FISHES.

4. GENERAL CONSIDERATIONS. p. 8.

5. ACTUAL WORK OF PROPAGATION OF FOOD-FISHES IN 1875 AND 1876. p. 20.

The shad. p. 20.

The California salmon. p. 21.

The Atlantic salmon. p. 25.

The land-locked salmon. p. 25.

The white-fish. p. 26.

The carp. p. 27.

D.—TABLES.

TABLE 7.—HATCHING AND DISTRIBUTION OF FISH BY THE UNITED STATES FISH COMMISSION FROM THE BEGINNING OF ITS WORK IN 1872 TO THE SUMMER OF 1876. p. 28.

II.—APPENDIX TO REPORT OF COMMISSIONER.

APPENDIX A.—THE SEA FISHERIES.

I. HISTORY OF THE AMERICAN WHALE FISHERY FROM ITS EARLIEST INCEPTION TO THE YEAR 1876. By Alexander Starbuck.

APPENDIX B.—THE INLAND FISHERIES.

II. FISHERIES OF CHICAGO AND VICINITY. By E. W. Nelson. p. 783.

III. THE SALMON FISHERIES OF THE COLUMBIA RIVER. By Livingston Stone. p. 801.

IV. NOTES ON SOME FISHERIES OF THE DELAWARE RIVER. By Dr. C. C. Abbott. p. 825.

V. METHOD OF PURIFYING THE RESIDUUM OF GAS-WORKS BEFORE ALLOWING IT TO PASS OFF INTO THE WATER. By J. R. Shotwell. p. 847.

VI. TABLES OF TEMPERATURES OF AIR AND WATER AT SUNDRY STATIONS OF THE UNITED STATES SIGNAL OFFICE, FROM MARCH, 1874, TO FEBRUARY, 1875, AND FROM MARCH, 1876, TO FEBRUARY, 1877, INCLUSIVE. p. 851.

Results of work.

1. Reports of the Commission.

(UNITED STATES COMMISSION OF FISH AND FISHERIES. PART IV.)

APPENDIX C.—THE PROPAGATION OF FOOD-FISHES.

VII. THE CARP AND ITS CULTURE IN RIVERS AND LAKES, AND ITS INTRODUCTION INTO AMERICA. By Rudolph Hessel. p. 865.

VIII. THE PROPAGATION AND DISTRIBUTION OF SHAD. Jas. W. Milner. p. 901.

IX. ON THE COLLECTION OF EGGS OF SCHOODIC SALMON IN 1875 AND 1876. By Charles G. Atkins. p. 910.

X. OPERATIONS ON THE MCCLOUD RIVER IN SALMON-BREEDING IN 1875. By Livingston Stone. p. 921.

XI. OPERATIONS ON THE MCCLOUD RIVER IN SALMON-BREEDING IN 1876. By Livingston Stone. p. 935.

XII. CORRESPONDENCE RELATING TO THE EXPORTATION OF FISH-HATCHING APPARATUS TO NEW ZEALAND, GERMANY, &C. p. 959.

ALPHABETICAL INDEX. p. 1025.

2. COLLECTIONS. (See under A, V to VIII.)

Photographs.

See series of photographs and color-sketches of North American fishes.

Upwards of four hundred casts of coast and fresh-water species.

(See under A, V to VIII.)

II. PROTECTION.

2. PRESERVATION OF GAME, FISH, ETC.

**From man.*

Game laws.

***From artificial obstructions.*

Fish-ways.

Gap fish-ways.
French, ditch, or "Cape Cod" fish-ways.
Oblique groove fish-ways.
Single groove.

15355. Model of fish-way. James D. Brewer, inventor, Muncy, Lycoming County, Pa.

15356. Model of fish-way. James D. Brewer, Muncy, Pa.

Fish-ways.

Step fish-ways.

Box or pool fish-ways.

26108. Model of fish-way. Jas. D. Brewer, Muncy, Pa. Patented by Daniel Steck.

Steps contrived by arrangement of rocks and bowlders.

25701. Model of Duncanson fish way. J. T. Rothe.

Inclined plane without steps.

29283. Model of old Pennsylvania fish-way. Built at Columbia, on the Susquehanna River, in 1866. Designed by James Worral. Scale, $\frac{1}{8}$ inch to the foot. C. G. Atkins, Bucksport, Me.

29284. Model of old Pennsylvania fish-way. Built at Columbia, on the Susquehanna River, in 1873. Designed by James Worral. Scale, $\frac{1}{8}$ inch to the foot. C. G. Atkins, Bucksport, Me.

With partitions at right angles.

29291. Model of rectangular return fish-way. Scale, $\frac{1}{4}$ inch to the foot. C. G. Atkins, Bucksport, Me.

Brackett's patent fish-way.

29285. Brackett's patent fish-way. Scale, $\frac{1}{4}$ inch to the foot. C. G. Atkins, Bucksport, Me.

26937. Model of the fish-way at Holyoke, Mass., on the Connecticut River. Scale, $\frac{1}{8}$ of an inch to the foot ($\frac{1}{96}$). C. G. Atkins.

This fish-way is on the Brackett plan. A submerged piece of cob-work surmounted by a grating serves to turn the fish into the fish-way. It carries a column of water 2 feet wide and 2 feet deep which reaches the bottom with no perceptible increase in velocity, the current being less than 2 miles an hour. Height of the dam, 30 feet; length of the fish-way, 440 feet; the incline, 1 in 15.

With oblique partitions.

29287. An adaptation of Foster's fish-way. Designed by C. G. Atkins, and built at Pembroke, Me. Scale, $\frac{1}{4}$ inch to the foot. C. G. Atkins, Bucksport, Me.

29286. Model of Foster's fish-way. Invented by H. H. Foster, E. Machias, Me. Scale, $\frac{1}{4}$ inch to the foot. C. G. Atkins, Bucksport, Me.

29288. Model of oblique fish-way. Invented by Alfred Swazey, Bucksport, Me., in 1876. Scale, $\frac{1}{4}$ inch to the foot. C. G. Atkins, Bucksport, Me.

29289. Swazey's oblique fish-way. Invented by Alfred Swazey, Bucksport, Me., in 1874. Scale, $\frac{1}{4}$ inch to the foot. C. G. Atkins, Bucksport, Me.

29290. Model of Swazey & Atkins's fish-way. Invented by Alfred Swazey and C. G. Atkins, Bucksport, Me., in 1874. Scale, $\frac{1}{4}$ inch to the foot. C. G. Atkins, Bucksport, Me.

——. Model of the McDonald fish-way. M. McDonald, Lexington, Va.

26939. No. 15. Model of the fish-way at Lawrence, Mass., on the Merrimack River. Scale, $\frac{1}{8}$ inch to the foot ($\frac{1}{96}$). C. G. Atkins.

Fish-ways.

With rectangular compartments.

26937. Model of rectangular compartment fish-way on the inclined-plane system, in an extended arrangement. Scale, ½ inch to the foot ($\frac{1}{24}$). C. G. Atkins.

Spiral fish-ways.

26949. No. 11. Model of rectangular compartment fish-way on the inclined-plane system, in spiral arrangement, devised by Charles G. Atkins, of Bucksport, Me., in imitation of Pike's spiral fish-way. Scale, ½ inch to the foot ($\frac{1}{24}$). C. G. Atkins.

This model represents a fish-way precisely the same capacity and slope, and adapted to a dam of the same height as No. 10, showing the great economy of space and material effected by the spiral arrangement. Further advantages of the spiral arrangement are the facility with which water can be admitted at different heights of the river, and contiguity of the outlet to the dam secured, so that the fish will readily find it.

26931. Model of Pike's spiral fish-way, devised by Hon. R. G. Pike, of Connecticut. Sale, ½ inch to the foot ($\frac{1}{24}$). C. G. Atkins.

The advantages of this, the first spiral arrangement invented in America, are the same as those claimed for that arrangement in Pike's spiral fish-way.

Moving float fish-ways.

26930. Model of Everleth's fish-way, devised by F. M. Everleth, M. D., of Waldorboro', Me. Scale, ¼ inch to the foot ($\frac{1}{48}$). C. G. Atkins.

The peculiarity of this fish-way is the movable attachment at the upper end, which, by its own buoyancy, rises and falls with the fluctuations of the river, thus insuring that the entrance shall always be at the right height to admit the requisite quantity of water.

*** *From natural enemies.*

Apparatus for destroying injurious species.

Oyster-bed tangles. (See under B, 12.)

Tethers and hopples.

Cages and pens.

Kennels for dogs, &c.
Cages for animals.
Cages for birds.
Cages for insects.

5631. Cages for fire-flies. West Indies. Miss Septimia Randolph.

Fish-cars and other floating cages for aquatic animals.

29539. Model of fish-marketman's car. For preservation of living fish. J. M. K. Southwick, Newport, R. I.

22221. Model of Providence River fish-car. These are towed by the smack, and as fast as fish are caught they are put into it, and so kept for Providence market. D. D. Almy.

29397. Model of Noank lobster-car. Capt. H. C. Chester.

29538. Model of fisherman's car for transporting living fish to market. J. M. K. Southwick, Newport, R. I.

26933. Model of a boat used in transporting living salmon at the United States salmon-breeding station at Bucksport, Me. Scale, 1 inch to the foot ($\frac{1}{12}$). C. G. Atkins.

When in use the boat is depressed until full of water, a number of salmon, sometimes as many as 30, are placed in it, and it is then towed after another boat, the motion insuring a constant change of water, which passes in at the forward ports and out at the after ports. The net and grating prevent the escape of the salmon, and the cloth shuts out the sight of anything that might frighten them.

Aquaria.

Globes.
Aquaria.

Hives and other cages for insects.
Live-boxes, troughs, &c., for microscopists' use.
Fish-ponds, fish-farms (models).

29278. Parlor trout-brook. Stone & Hooper, Charlestown, N. H.

29380. Rearing-box. Stone & Hooper, Charlestown, N. H.

4. Enemies of useful animals.

Intestinal worms and other internal parasites.[1]
Fish-lice, barnacles, and other external parasites.[1]
Predatory animals not elsewhere exhibited.

III. PROPAGATION.

5. Propagation of mammals.

Methods of mink culture.
Methods of culture of domesticated animals.

6. Propagation of birds.

Methods of ostrich culture.
Methods of culture of domesticated birds, fowls, &c.

[1] See in Part II of the present catalogue.

7. PROPAGATION OF REPTILES.

Methods of terrapin culture.

8. PROPAGATION OF AMPHIBIANS.

Methods of frog culture.

9. PROPAGATION AND CULTURE OF FISHES.[1]

Accessories of obtaining and impregnating ova.

Pans, pails, &c.
Strait-jackets used in spawning salmon.
Spawning-race (Ainsworth).
Roller spawning-screen (Collins).
Spawning-vat (Bond).

Hatching-apparatus.

26940. No. 19. Model of hatching-house at United States salmon-breeding station at Bucksport, Me. Scale, $\frac{1}{4}$ inch to the foot ($\frac{1}{48}$). C. G. Atkins.

The hatching-troughs are arranged in sets of four across the building, and fitted with Brackett trays. The water enters them from a feed-trough along the side of the room and escapes by pipes through the floor.

Troughs:
Plain.
Gravel-bottomed.
With sieve-bottom trays.

26933. No. 20. Model of hatching-troughs and trays in use at the United States salmon-breeding stations at Bucksport and Grand Lake Stream, Me. Scale, full size. C. G. Atkins.

The eggs to be hatched are placed on the wire-cloth trays.

26935. Model of hatching-frame in use at Grand Lake Stream, adapted to use in a trough or in an open stream. Devised by C. G. Atkins. Scale, full size. C. G. Atkins.

The eggs are placed on all of the trays except the upper one. The interstices, though too small for the escape of the eggs, permit a change of water, and when the frame is shut it confines the trays securely in place.

26970. Model of hatching-apparatus for black-bass. John Roth, Duncannon, Pa.

Brackett's.
Williamson's.
Clark's.
Vats or cases:
Holton's.
Roth's.

[1] Many of these articles cannot conveniently be exhibited.

Hatching-apparatus.

Glass-grilled boxes (Coste's).

26995. Coste hatching-tray. Mrs. J. H. Slack, Troutdale, N. Y.

Jars and tin vessels.

22247. Shad-hatching can. Invention of Fred. Mather. U. S. Fish Commission.
26909. Ferguson aquarium-jar. T. B. Ferguson, Baltimore, Md.
22250. Ferguson's fish-hatching can. " "
26998. Ferguson's hatching jar. " "

Hatching-boxes (floating).

26903. Shad-hatching box. Seth Green's patent. U. S. Fish Commission.
26997. Shad-hatching box. Seth Green's patent. Seth Green, Rochester, N. Y.
26904. Shad-hatching box. Brackett's patent. U. S. Fish Commission.
26902. Shad-hatching box. Brackett's patent. E. A. Brackett, Winchester, Mass.
26905. Shad-hatching box (No. 2). Brackett's patent. U. S. Fish Commission.
26906. Shad-hatching box. Bryant's patent. U. S. Fish Commission.
26907. Shad-hatching box. Stillwell & Atkins's patent. U. S. Fish Commission.
26908. Shad-hatching box. Bannister's design. U. S. Fish Commission.
26955. Hatching apparatus. N. W. Clark, Clarkston, Mich.
——. Shad hatching-box (model). J. C. House & O. A. McClain, Washington, D. C.

Adhesive eggs apparatus:
Vertical wire-cloth trays.
Hatching-basket.

26956. Salmon egg hatching-baskets. McCloud River, California. Livingston Stone.

Brook-shanty (Furman's).
(Bay or cove barriers, Professor Rasch's.)
Accessories:
Tanks.
Nests.
Trays.
Grilles.
Gravel-filters.
Flannel screens.
Shallow troughs or tables (for picking eggs).
Egg-nippers.

26915. Wooden nippers. Fred. Mather, Honeoye Falls, N. Y.
25955. Brass egg-nippers. Frank N. Clark, Northville, Mich.

Cribbles.
Pipettes.
Skimmer-nets.

Hatching-apparatus.

Accessories:

Feathering quills and brushes.
Rose-nozzles (for washing eggs).
Syringes, bulb, &c.
Shallow pans.
Aerating-pipe.

Transporting apparatus.

Apparatus for transporting eggs:

Cans.
Case of cups (Wilmot's).
Case of cups (Clark's).
Case of trays (Clark's).
Moss-crates (Stone's).

25025. Moss-crates for transportation of eggs of Sacramento salmon across the continent. Livingston Stone, Charlestown, N. H.

Apparatus for transporting fish:

Barrels.
Cans, plain.

26911. Milk-can, used in transportation. U. S. Fish Commission.
29377. Conical tank. Stone & Hooper, Charlestown, N. H.
26910. Conical can. Livingston Stone, Charlestown, N. H.

Cans with aerating accessories:

26914. Tank for ocean transportation. Invention of Fred. Mather. U. S. Fish Commission.
29379. Transporting-tank. Stone & Hooper, Charlestown, N. H.
26881. Transporting-can. C. W. Rogers, Waukegan, Ill.
26932. Model of box used in the transportation of living salmon at the United States salmon-breeding station at Bucksport, Me. Scale, 2 inches to the foot ($\frac{1}{6}$). C. G. Atkins.
When in use the box is filled with water and from 5 to 7 salmon placed in it and carted a mile.

Slack's.
Clark's.
M. A. Green's.

Tanks, with attachment of band-wheel to car-axle (Stone's).
(Tanks, with Freiburg aerating apparatus.)
Aquarium-car (Stone's).
Live-box (Atkins's).
Accessories:

Air force-pumps.
Siphon-tubes.

26912. Rubber siphon-tube. U. S. Fish Commission.
26913. Aerating-rose, with siphon. U. S. Fish Commission.

Transporting apparatus.

Accessories:

Bellows.
Dipping apparatus.

26934. Model of dipping-bag used instead of a dip-net in handling salmon at the United States salmon-breeding station at Bucksport, Me. Scale, 1 inch to the foot ($\frac{1}{12}$). C. G. Atkins.

10. PROPAGATION OF INSECTS.

Propagation of silk-worm.

Specimens of plants used for food.
Model of house and its appliances.

Propagation of cochineal insect.

Propagation of bees.

For hives see under E, 3.

11. PROPAGATION OF WORMS.

Propagation of leeches.

12. PROPAGATION OF MOLLUSKS.

Methods of oyster culture.

Stools for receiving spat, natural and artificial.
Other apparatus.

13. PROPAGATION OF CORALS.

14. PROPAGATION OF SPONGES.

PART II.

CATALOGUE OF ILLUSTRATIONS

OF THE

ECONOMICAL INVERTEBRATES

OF

THE AMERICAN COASTS.

BY

W. H. DALL.

CATALOGUE OF ILLUSTRATIONS OF THE ECONOMICAL INVERTEBRATES OF THE AMERICAN COASTS.

MOLLUSCA.

Mollusca cephalopoda.—SQUIDS AND CUTTLES.

32905. Sepia "bone," or endosteum, in natural condition. East coast of the United States. Uses: Fed to cage-birds requiring lime.

32905*a*. Pounce: Powdered sepia-bone; used in rewriting over erasures to prevent blotting, in medicine as an antacid.

33005. Cuttle-fish (*Octopus punctatus*, Gabb). California to Alaska. Used for bait in the cod-fishery, and by the natives for food. W. H. Dall.

25972. Oil of squid (*Ommastrephes illecebrosa*). Capt. N. E. Atwood, Provincetown, Mass.

Mollusca gasteropoda.—SEA-SNAILS, &c.

A. Useful:

1. Used for food or bait:

32885. Velvet chiton (*Cryptochiton stelleri*). Alaska to California. Indian food. W. H. Dall.

32886. Coat-of-mail shell (*Katherina tunicata*). Alaska to California. Indian food. W. H. Dall.

32883. Limpet (*Acmæa testudinalis*). Connecticut to Labrador. W. H. Dall.

32904. Western limpet (*Acmæa patina*). Alaska to California. W. H. Dall.

32880. Rockwinkle (*Litorina subtenebrosa*). Alaska to Oregon. W. H. Dall.

32882. Periwinkle (*Purpura canaliculata*). Alaska to California. W. H. Dall.

32884. Periwinkle (*Purpura ostrina*). California. W. H. Dall.

32903. Periwinkle (*Purpura lapillus*). Cape Cod to Labrador. W. H. Dall.

2. Useful by producing pearl-shell, &c.:

32830. Turban-shell (*Trochiscus norrissii*). California. H. Hemphill.

32832. Top-shell (*Pomaulax undosum*), in natural state. California. H. Hemphill.

32831. Top-shell, prepared to show pearly layers. California. H. Hemphill.

29301. Manufactured state of various kinds of American pearl-shells derived from gasteropods or sea-snails. Furnished by A. B. De Frece & Co., 428 Broadway, New York.

32838. Sea-ears (*Haliotis Kamchatkana*), affording pearl-shell and food. Alaska. J. G. Swan.

32890. Rough sea-ear (*H. corrugata*). Southern California. Used for pearl-shell and for food. Specimen in natural condition. W. H. Dall.
——. Rough sea-ear. Specimen ground and polished to show pearly layers. J. T. Ames.
32900. Red sea-ear or abalone (*H. rufescens*). Monterey, Cal. Used for pearl-shell and for food. Specimens in natural condition. H. Hemphill.
——. Red sea-ear. Polished specimen showing pearly layers. J. T. Ames.
——. Red sea-ear. Fleshy portion prepared and dried for food by California Chinese. Chinese market, California. H. Hemphill.
32823. White abalone (*H. cracherodii*), producing pearl-shell and food. Natural state. California. Paul Schumacher.
32899. White abalone. Natural state. Monterey, Cal. H. Hemphill.
——. White abalone. Polished to show pearly layers. Jas. T. Ames.
4792. White abalone. Polished specimens.
32821. Splendid sea-ear (*H. splendens*) affording food and pearl-shell. California. Paul Schumacher.
32898. Splendid sea-ear. Natural condition. Southern California. H. Hemphill.
——. Splendid sea-ear. Polished to show pearly layers. J. T. Ames.
——. Splendid sea-ear. Young specimen polished. J. T. Ames.
29302. Manufactures of *Haliotis* shell, showing application in the arts. Furnished by A. B. De Frece & Co., 428 Broadway, New York.
29248. Ditto. Parasol-handles. Furnished by Harvey & Ford, Philadelphia, Pa.

3. Affording cameo and porcelain stock:

6968. Cameo-shell (*Cassis rufa*), used for cameo cutting. Florida. Dr. Wm. Stimpson.
——. Queen conch (*Strombus gigas*), exported to Liverpool in great numbers and ground up for making porcelain.[1] West Indies.

4. Used in Indian trade:

2705. Hyqua shell (*Dentalium indianorum*), used in Indian trade. In this case the shells have been made into a belt by the purchaser. West coast of America. U. S. Exploring Expedition.

5. Affording dyestuffs:

32907. Sea-hare (*Aplysia*). Affording purple dye. Florida. F. B. Meek.
32896. Sea-hare. Specimen of the purple fluid. F. B. Meek.
32911. Purple shells (*Phyllonotus radix*). Ornamental and producing dye. Lower California. W. H. Dall.
32912. Purple shells (*Phyllonotus bicolor*). Used for ornaments and affording dye. West coast of America. W. H. Dall.

6. Affording bird-lime:

33080. Giant slug (*Ariolimax columbianus*), affords a thick tenacious slime, which is used by the Indians to lime humming-birds. California to Alaska. H. Hemphill.

[1] The sea-ears and queen conchs are also largely used in Indian trade in a manufactured state.

B. Injurious:

1. By destroying food-producing mollusks or shell-fish, such as clams, mussels, oysters, and razor-fish:

32860. Ribbon whelk (*Fulgur carica*). Florida. T. A. Conrad.
32859. Reversed whelk (*Fulgur perversa*). Carolinas. Dr. Wm. Stimpson.
32861. Hairy whelk (*Sycotypus canaliculatus*). Vineyard Sound. Dr. Wm. Stimpson.
32864. Winged conch (*Strombus alatus*). Tampa Bay, Florida. T. A. Conrad.
32863. Thorny drill (*Hemifusus bicoronatus*). Tampa Bay, Florida. T. A. Conrad.
32835. Drill (*Urosalpinx cinereus*). Florida to Massachusetts Bay. W. H. Dall.
32975. Drill. South Norwalk, Conn. Hoyt Bros.
32837. Periwinkle (*Purpura floridana*). Barataria Bay, La. Gustav Kohn.
32892. Sea-snail (*Lunatia Lewisii*). Monterey, Cal. H. Hemphill.
32913. Sea-snail (*Neverita recluziana*). California. W. H. Dall.
27620. Sea-snail (*Neverita duplicata*). North Carolina. T. D. Kurtz.
32866. Sea-snail (*Lunatia heros*). Massachusetts Bay. C. B. Fuller.

2. Injurious by destroying vegetable substances and garden plants:

33088. Slug (*Limax Hewstoni*). Oakland, Cal. H. Hemphill.

Mollusca acephala.—BIVALVE SHELLFISH.

A. Producing food or used as bait.

* *Oysters.*

1. Series illustrating distribution and geographical varieties:

Ostrea virginica, Gmelin.—EAST AMERICAN OYSTERS.

32784. Northern variety (*O. borealis*, Lam.) Prince Edward's Island. J. W. Dawson.
32813. Nova Scotia. J. H. Willis.
32785. Shediac, New Brunswick. W. H. Dall.
33092. "Pourrier Bed." Shediac, New Brunswick. G. F. Mathew.
33093. "Buctouche." Kent County, New Brunswick. G. F. Mathew.
32783. Miramichi River, New Brunswick. W. H. Dall.
32977. Indigenous oyster, now extinct. Shell-heaps. Damariscotta, Maine. Robert Dixon.
32978. Ditto. Shell-heaps. Sheepscot River, Maine. Robert Dixon.
32810. Indigenous oyster (var. *borealis*). Buzzard's Bay, Mass. Dr. Wm. Stimpson.
32814. Specimens showing color-bands. Rhode Island. General Totten.

NOTE.—The following series of oysters from the vicinity of New York were furnished by Mr. B. J. M. Carley, oyster-dealer, of Fulton Market, New York, through Mr. E. G. Blackford:

32790. "Greenwich." Greenwich, Conn.
32777. "Blue Point." Long Island, New York.
32779. "Lloyd's Harbor." Long Island, New York.

32781. "Cow Bay." Long Island, New York.
32791. "Glenwood." Glenwood, Long Island, New York.
32812. "Cove." Long Island, New York.
32920. "City Island." Long Island Sound, New York.
32919. "Mill Pond." Cow Bay, Long Island, New York.
32778. "Shrewsburys." Shrewsbury River, New Jersey.
32915. "Egg Island." Three years old. Morris Cove, Delaware.
33788. "Chesapeake." Crisfield, Md. E. G. Blackford.
32976. Pokamoke, Virginia. E. G. Blackford.

NOTE.—The following series from the waters of Virginia and Maryland, all indigenous or "natural growths" as distinguished from "plants," were selected by Mr. G. W. Harvey, and furnished by Harvey & Holden, oyster-dealers of Washington, D. C.:

33096. "St. Gerome River." Maryland.
33097. "Deep Creek." Eastern shore of Maryland.
33098. "Tangier Sound." Chesapeake Bay.
33100. "Little River." Western shore of Maryland.
33099. "Point Lookout Creek." Virginia.
33101. "Naswaddox." Eastern shore of Virginia.
33095. "Rappahannock." Rappahannock River, Virginia.
33103. "York River." York River, Virginia.
33104. "Cherrystones." Chesapeake Bay.
33102. "Presby's Creek." Presby's Creek, Virginia.

The following series from Florida were furnished by Kossuth Niles, U. S. N.:

32805. "Appalachicola Bay." Appalachicola Bay, Florida.
32803. "Cat Point." Same locality.
32807. ———. Same locality.
32808. "Raccoon oysters." Appalachicola Bay, Florida.

The following series from the vicinity of New Orleans were selected by M. Zatarain, and furnished by W. Alex. Gordon, esq., of New Orleans, La.:

32800. "Timbalier Bay." Louisiana.
32801. "Southwest Pass." Louisiana.
32802. "Bayou Cook." Louisiana.
32803. "Four Bayous." Louisiana.
32804. "Grand Lake." Louisiana.

Ostrea lurida, Cpr.—WEST COAST OYSTERS.

32879. Natives. Crescent City, Cal. W. H. Dall.
32809. Natives. Shoalwater Bay, W. T. H. Hemphill.
32798. Natives. San Diego, Cal. H. Hemphill.
32798. Eastern oyster (*O. virginica*). Taken from Newark Bay, N. J., when a year old and planted in San Francisco Bay; showing two years' growth in California waters.

Extra limital:

32878. Fossil oyster from marine Tertiary beds near Vicksburg, Miss. Closely resembling the present English oyster.
32311. Fresh specimen, English oyster (*O. edulis*, Linn.). Introduced for comparison with the American fossil and recent oysters. North Sea. Dr. Wm. Stimpson.

2. Series illustrating culture and individual variations:

Ostrea virginica, Gmelin.—EAST AMERICAN OYSTERS.

That portion of the series from South Norwalk, Conn., was furnished by Hoyt Bros. of that place, at the instance of James Richardson, esq. The portion of the series from the vicinity of New York was furnished by Mr. B. J. M. Carley through Mr. E. G. Blackford, of New York.

a. Growth. 1–20 years old:

32958. Young spat on various stools. South Norwalk, Conn.
32957. One year old. South Norwalk, Conn.
32967. Two to three years old. Natural growth. South Norwalk, Conn.
32968. Three to four years old. Natural growth. South Norwalk, Conn.
32965. "Cullers." Three to four years old. South Norwalk, Conn.
32962. Three years after transplantation. South Norwalk, Conn.
32964. "Box." Four to six years old. South Norwalk, Conn.
32916. "Cullers." Three years old. Vicinity of New York.
32918. "Single extra." Four years old. Vicinity of New York.
32776. "Double extra." Vicinity of New York.
32917. "Box." Three years old. Vicinity of New York.

b. Peculiarities of form and growth:

32959. "Pinched" oyster from muddy bottom. South Norwalk, Conn.
32930. Showing effect of transplanting the "pinched" from a muddy to a hard bottom. South Norwalk, Conn.
32787. Form caused by growing in a tideway. Vicinity of New York.
32786. Form caused by growing in still water. Vicinity of New York.
32974. Curious forms of shell. South Norwalk, Conn.
32782. Peculiar growth. Vicinity of New York.
32795. Specimens of peculiar form. Vicinity of New York.
32971. Natural growth on stone. South Norwalk, Conn.
32973. Natural growth on part of stone jug. South Norwalk, Conn.
32972. Natural growth on shells. South Norwalk, Conn.
32970. Natural growth on bottle. South Norwalk, Conn.
32969. Natural growth on crab. South Norwalk, Conn.
32780. Illustrating methods of attachment. Vicinity of New York.
32914. Blue Point "seed." Long Island, New York.
32789. Rosette of oysters. Vicinity of New York.
32792. Shell growing on *Mactra* shell. Vicinity of New York.
32794. "Seed" on old rubber boot. Vicinity of New York.
32793. "Seed" growing on stone. Vicinity of New York.
32895. "Seed" on rubber shoe. Vicinity of New York.
32894. "Seed" on bone. Vicinity of New York.
32797. "Seed" on bark. Vicinity of New York.
32796. "Seed" on leather shoe. Vicinity of New York.
32932. "Seed" on old boot-leg. Vicinity of New York.

c. Enemies and parasites:

32927. Specimens injured by whelk. South Norwalk, Conn.
32929. Specimens injured by hairy whelk. South Norwalk, Conn.

32928. Specimens perforated by "drill." South Norwalk, Conn.
32963*a*. Specimen injured by boring worm (an *Annelid*). South Norwalk, Conn.
32956. Specimens killed by star-fish. South Norwalk, Conn.
32963. Specimens showing ravages of *Cliona* or boring sponge. South Norwalk, Conn.
For commensal crab see Crustacea.
33092*a*. Lime derived from oyster shells. Use in medicine and as a fertilizer. Washington, D. C. W. H. Dall.

*** *Other bivalves.*

A. Affording or available for food or bait.

32887. Rock oyster (*Placunanomia macroschisma*, Desh.). Alaska to California. W. H. Dall.
32873. Scallops (*Pecten irradians*, Lam.). Long Island Sound. Dr. Wm. Stimpson.
32868. Great scallop (*P. tenuicostatus*, Migh.). Coast of Maine. C B. Fuller.
27523. Black mussel (*Mytilus edulis*, L.). Massachusetts Bay. Dr. Wm. Stimpson.
32857. Ditto. San Francisco Bay, California. H. Hemphill.
32845. Ditto. Monterey, Cal. H. Hemphill.
32849. Ditto. San Diego, Cal. H. Hemphill.
32875. Grooved mussel (*Modiola plicatula*, Lam.). Nahant, Mass. Dr. Wm Stimpson.
32834. Ditto. (*Modiola*, sp.) Last Island, La. Gustav Kohn.
32858. Brown mussel (*M. capax*, Conr.). San Diego, Cal. H. Hemphill.
32876. Ditto. (*M. modiolus*, L.) Massachusetts Bay. Dr. Wm. Stimpson.
32897. Ditto. Massachusetts Bay. Dr. Wm. Stimpson.
——. Ditto. Castine, Me. A. R. Crittenden.
32871. Giant cockle (*Cardium magnum*, Birn.). Tampa Bay, Florida. T. A. Conrad.
32851. Egg cockle (*C. elatum*, Sby.). Guaymas, west coast Mexico. Dr. Palmer.
32853. Nuttall's cockle (*C. nuttallii*, Con.). Baulinas, Cal. H. Hemphill.
32891. Ditto. Alaska. W. H. Dall.
32872. "Red edge" (*Codakia tigerrina*, L.). Florida. Dr. Wm. Stimpson.
32877. Quahog—round clam (*V. mercenaria*, L.). Maine to Florida.
32862. Ditto. (Var. *mortoni*.) Maine to Florida. Dr. Stimpson.
32893. Ditto. Providence River, Rhode Island. Benj. Davis.
32819. Ditto. "Snubnosed" var. Fire Island. B. J. M. Carley.
32817. Ditto. Elongated var. Rockaway, N. J. B. J. M. Carley.
32838. Ditto. Barataria Bay, La. Gustav Kohn.
32818. Ditto. Deformed specimens. Long Island Sound. B. J. M. Carley.
——. Ditto. Specimens of shell polished. Jas. T. Ames.
32889. "Hen clam" (*Pachyderma crassatelloides*, Conr.). California. W. H. Dall.
32843. "Round clams" (*Saxidomus aratus*, Gld.). San Diego, Cal. H. Hemphill.
32867. "Painted clam" (*Callista gigantea*, Ch.). South Carolina.
32841. "Little Neck clams" (*Chione succincta*, Val.). San Diego, Cal. H. Hemphill.
32842. Ditto. (*C. simillima*, Sby.). San Diego, Cal. H. Hemphill.

32846. Ditto. (*Tapes laciniata*, Cpr.). San Diego, Cal. H. Hemphill.
32854. Ditto. (*T. staminea*, Conr.). Baulinas, Cal. H. Hemphill.
32844. Ditto. Tomales Bay, Cal. H. Hemphill.
32869. "Hen clam" (*Mactra solidissima*, Ch.). Massachusetts Bay. W. H. Dall.
32870. Ditto. Shells utilized for catch-alls. Newport, R. I. N. C. Peterson.
32888. Ditto. (*M. falcata*, Gld.). Alaska to California. W. H. Dall.
32826. "Gapers" (*Schizothærus nuttalli*, Con.). Oregon. J. G. Swan.
32852. Ditto. Baulinas, Cal. H. Hemphill.
32874. Salmon tellen (*Macoma*, sp.). Florida. T. A. Conrad.
32848. "Tellens" (*M. nasuta*, Conr.). San Francisco markets. H. Hemphill.
32847. "Flat clam" (*Semele decisa*, Cpr.). San Diego, Cal. H. Hemphill.
32909. "Razor-fish" (*Solen ensis*, L.). Cow Bay, New York. B. J. M. Carley.
32881. Ditto. (*Siliqua patula*, Dixon.) Alaska to California. W. H. Dall.
32955. "Soft-shelled clams" (*Mya arenaria*, L.). Cape Cod, Mass. E. G. Blackford.
32829. Ditto. Oyster Bay, L. I. E. G. Blackford.
32833. Ditto. Accidentally transplanted with young oysters to San Francisco Bay, where it now abounds greatly. Oakland, Cal. H. Hemphill.
33094. Ditto. Bay of Fundy, N. S. G. F. Mathew.
32850. Date-fish (*Platyodon cancellatus*, L.). Baulinas Bay, Cal. H. Hemphill.
32856. Ditto. (*Zirphæa crispata*, L.). Baulinas, Cal. H. Hemphill.

B. Useful or ornamental bivalves other than those affording food:

a. Pearl-producing.

1. River mussels:

26092*a*. River mussel affording pearl-shell, illustrating application of raw material. Cincinnati, Ohio. D. H. Shaffer.
26092. Carvings, from pearl-shell afforded by river mussels, for use as studs, buttons, pins, brooches, &c. Cincinnati, Ohio. D. H. Shaffer.
26092*b*. Pearls derived from river mussels. Cincinnati, Ohio. D. H. Shaffer.
——. A series of river mussels of various species, one valve polished, the other in its original condition in each case. Chicopee, Mass. Jas. T. Ames.
25983 to 26010. Another series, both valves polished, from Dr. C. A. Miller, Cincinnati, Ohio, comprising the following species:

Unio rugosus, Barnes.
alatus, Say.
ornatus, Lea.
verrucosus, Barnes.
gibbosus, Barnes.
rectus, Lam.
cylindricus, Say.
pyramidatus, Lea.
tuberculatus, Barnes.
siliquoides, Barnes.
circulus, Lea.
anodontoides, Lea.
pustulosus, Lea.
cuneatus, Barnes, &c., &c.

2. Marine pearl-shells:

13507. American pearl-oyster (*M. fimbriata*). Panama. Col. Jewett.
3624. Ditto. Illustrating formation of pearls. Panama. Col. Jewett.
32836. Ditto. Gulf of California. J. Xantus.
——. Ditto. Polished shell. Chicopee, Mass. Jas. T. Ames.
32921. Ditto. Made into artificial fish-bait. Boston, Mass. Bradford & Anthony.
32922. Ditto. Made into artificial minnow. Boston, Mass. Bradford & Anthony.
——. Series of buttons, studs, stopper-caps, &c. Manufactured from, and showing application of American pearl-oyster shell. Furnished by A. B. De Frece & Co., 428 Broadway, New York.

b. Otherwise useful:

32869. "Hen clam" (*Mactra solidissima*, Ch.). Shell used for scoops, milk-skimmers, and boat-bailers. Painted inside and used for catch-alls.
29527. Basket. Made from Florida shells. E. F. Gilbert, Jacksonville, Fla.
22210. Basket. Made from Florida shells. Mrs. C. E. Mott, Jacksonville, Fla.
22209. Frame. Made from Florida sea-shells. Mrs. C. E. Mott, Jacksonville, Fla.
22211. Easter Cross. Made from Florida shells. Mrs. C. E. Mott, Jacksonville, Fla.
29526. Shell flowers. Made from Florida shells. E. F. Gilbert, Jacksonville, Fla.
26595. "Coquina." Miscellaneous species broken up and cemented by surf action into a natural conglomerate, used for building stone or for making a superior kind of lime. Saint Augustine, Fla. G. Browne Goode.
32839. "Cuneate clam" (*Gnathodon cuneatus*). Used largely for bait. Natural condition. Lake Pontchartrain, La. Gustav Kohn.
32840. Ditto. Semi-fossil (in shell-heaps), used for macadamizing roads. Lake Salvador, La. Gustav Kohn.

C. Injurious bivalves:

a. Destroying submerged timber:

Specimens of wood showing ravages:

32982. Ship-worm (*Teredo* sp.). Bangor, Me. (Brig H. B. Emory.) C. H. Parker.
32908. Ditto. In lignumvitæ wood. Gloucester, Mass. Samuel Elwell, jr.
33106. Ditto. (*Teredo chlorotica*, Gld.) Wood's Holl, Mass. Vinal N. Edwards.
33105. Ditto. (*Xylotrya fimbriata*, Jeffr.) Wood's Holl, Mass. Vinal N. Edwards.
32984. Ditto. (*Teredo navalis?* L.) New Haven, Conn. A. E. Verrill.
32902. Ditto. (*Teredo* sp.) Showing damage effected in white-pine wood in one year. Pier 44, North River, N. Y. W. T. Pelton.
32901. Ditto. Showing damage to hard-pine wood effected in one year. Charleston, S. C. W. T. Pelton.
32983. Ditto. Schooner Carrie Melvin; done in 6 weeks. Charleston, S. C. A. G. Hunt.

32815. Ship-worm. (*Teredo* sp.). Gulf coast. Dewey.
32816. Ditto. Showing lining of tubes. Texas. Dr. Schott.
19405. Ditto. (*Xylotrya* sp.) Coast of Oregon. J. G. Swan.

D. Prepared foods:

* Specimens of various brands of canned, preserved, and pickled shell-fish in manufacturers' packages:

26579. Pickled oysters (*Ostrea virginica*). Blue Point. B. J. M. Carley.
26581. Pickled oysters (*Ostrea virginica*). Saddle Rocks. B. J. M. Carley, New York.
25835. Fresh Cove oysters (*Ostrea virginica*). Kemp, Day & Co., New York.
25844–54. Fresh Cove oysters (*Ostrea virginica*). Kemp, Day & Co., New York.
25861–3. Spiced Cove oysters (*Ostrea virginica*), hermetically sealed. Kemp, Day & Co., New York.
26577. Pickled Little Neck clams (*Mya arenaria*). B. J. M. Carley.
26582. Pickled clams (*Venus mercenaria*). "Cow Bay." B. J. M. Carley.
26642. The Farmers' Old Orchard Beach clams (Little Necks, star brand). Portland Packing Company, Portland, Me.
26575. Pickled scallops (*Pecten irradians*). Oyster Bay. B. J. M. Carley.
26580. Pickled mussels (*Mytilus edulis*). East River, N. Y. B. J. M. Carley, New York.
25873. Scarboro' Beach clams (*Venus mercenaria*). Put up by Burnham & Morrill, Portland, Me. Kemp, Day & Co., New York.
25864–6. Orchard Beach clams (*Venus mercenaria*). Kemp, Day & Co., New York.
25867–9. Little Neck clams (*Mya arenaria*). Kemp, Day & Co., New York.
25870–2. Little Neck clams (*Mya arenaria*). Put up by Bogart & Co., New York. Kemp, Day & Co., New York.
24925. Little Neck clams (*Mya arenaria*). Wm. Underwood & Co., Boston, Mass.
22235–6. Pickled Little Neck clams (*Mya arenaria*). Penobscot Bay. Castine Packing Company, Castine, Me.
26752. Alden's granulated clams. Prepared by Alden Sea-Food Company. Sold by Lyon Manufacturing Company, New York. Presented by E. G. Blackford, New York.
26753. Alden's granulated and concentrated clams (paper boxes). Prepared by Alden Sea-Food Company. Sold by Lyon Manufacturing Company, N. Y. Presented by E. G. Blackford, New York.

** Otherwise prepared.

5672. Dried siphons of *Schizotherus Nuttalli*. Prepared by the Puget Sound Indians, Wash. Ter. Dr. J. G. Suckley, U. S. Army.

CRUSTACEA.

Crustacea phyllopoda.

A. Useful; converted into fertilizers; carapax used as a scoop or boat-bailer:

2222. King crab, Horseshoe (*Limulus polyphemus*). Florida. F. B. Meek.
2223. Ditto. Male and female. Cape May C. H., New Jersey. Thos. Beesley.
2223. Ditto. Product "cancrine," prepared fertilizer. Cape May C. H., New Jersey. Thos. Beesley.

Crustacea isopoda.

A. Useful; by removing wrecks or snags.

B. Injurious; by destroying submerged timber.

2286. Woodeater (*Limnoria lignorum*, White). San Diego, Cal. H. Hemphill.

2254. Ditto. New Haven, Conn. A. E. Verrill.

a. Wood showing ravages:

2240. Eastport, Me. U. S. Fish Commission.

2290. Wood's Holl, Mass. Vinal N. Edwards.

2221. San Diego, Cal. H. Hemphill.

Crustacea stomatopoda.

Available for food:

2253. Squill (*Squilla empusa*, Say). Long Island Sound. U. S. Fish Commission.

2268. Southern squill (*Coronis glabriuscula*, Stm.). Galveston, Texas. M. Wallace.

Crustacea decapoda.—LOBSTERS, SHRIMP, CRAWFISH, CRABS.

A. Useful; food-supplying:

2263. River shrimp (*Palæmon* sp.). New Orleans, La. Gustav Kohn.

2264. Ditto. (*Pal. ohionis*, Smith.) New Orleans, La. Gustav Kohn.

2269. Ditto. (*Palæmon?*) Isthmus of Panama. Dr. Bransford.

2252. Sea shrimp (*Palæmonetes vulgaris*, Stm.). Long Island Sound. U. S. Fish Commission.

2211. Shrimp (*Pandalus Danæ*, Stm.), as dried for export by Californian Chinese. San Francisco, Cal. H. Hemphill.

2220. Ditto. (*Hippolyte brevirostris*, Dana.) San Francisco, Cal. H. Hemphill.

2219. Ditto. (*Crangon franciscorum*, Stm.) San Francisco, Cal. H. Hemphill.

2251 Ditto. (*Crangon vulgaris*, Fbr.) New England coast. U. S. Fish Commission.

2267. River crawfish (*Astacus oregonensis*, Nutt.). California. J. R. Scupham.

2261. Ditto. (*Cambarus Clarkii*, Gir.) New Orleans, La. Gustav Kohn.

2265. Ecrevisse (*Cambarus affinis*, Er.). Potomac River, Va. J. W. Milner.

2280. Lobster (*Homarus americanus*, Edw.). New York. E. G. Blackford.

2250. Ditto. Series showing young stages. Vineyard Sound, Mass. U. S. Fish Commission.

2241. Ditto. Young specimens, dry. Massachusetts Bay. U. S. Fish Commission.

2212. Ditto. Claws of extraordinary size. Massachusetts Bay. Amos Lawrence.

2213. Ditto. Remarkably abnormal claws. Newport, R. I. J. H. Clarke.

2214. Ditto. Noank, Conn. T. & E. H. Potter.

——. Pincushion, showing application of lobster-claws. Wellfleet, Mass. Miss Anabel Stone.

2215. Prawn; Sea crawfish (*Panulirus interruptus*, Ran.). Santa Barbara Channel, Cal. H. Hemphill.

2248. Crab (*Platyonichus ocellatus*, Latr.). Vineyard Sound, Mass. U. S. Fish Commission.
2256. Ditto. (*Panopeus Herbstii*, Edw.) New Orleans, La. Gustav Kohn.
2247. Ditto. (*Carcinus mænas*, Leach.) New Haven, Conn. A. E. Verrill.
2243. "Soft-shelled" (in certain stages only) crab (*Callinectes hastatus*, Say). Vineyard Sound, Mass. U. S. Fish Commission.
2249. Ditto. Long Island Sound. U. S. Fish Commission.
2218. Kelp-crab (*Epistlus productus*, Randall). Monterey, Cal. H. Hemphill.
2244. Crab (*Cancer borealis*, St.). Casco Bay, Maine. U. S. Fish Commission.
2242. Common crab (*Cancer irroratus*, Say). Casco Bay, Maine. U. S. Fish Commission.
2245. Ditto. Vineyard Sound, Mass. U. S. Fish Commission.
2217. Scalloped crab (*Cancer antennarius*, Stm.). San Francisco, Cal. H. Hemphill.
2216. Market crab (*Cancer magister*, Dana). San Francisco, Cal. H. Hemphill.

B. Commensal with other food supplies:

2266. Oyster-crab (*Pinnotheres ostreum*, Say). Commensal with all southern oysters and with northern-oysters in northern rivers where the southern oysters have been long planted. New York. E. G. Blackford.
2272. Ditto. Commensal on the western coast with *Pachydesma* and *Mytilus californianus*. San Diego, Cal. H. Hemphill.

C. Injurious by burrowing into and weakening levees and dams:

2261. Crawfish (*Cambarus Clarkii*, Gir. and most other species). New Orleans, La. Gustav Kohn.
2259. Fiddler-crab (*Gelasimus pugnax*, Smith). New Orleans, La. Gustav Kohn.

D. Prepared foods:

Canned lobster and crabs in manufacturers' packages:

25836–43. Canned lobster (*Homarus americanus*). Kemp, Day & Co., New York.
22237. Canned lobster (*Homarus americanus*). Castine, Me. Castine Packing Company.
26643. Fresh star-lobster (star brand). Portland Packing Company, Portland, Me.
26651. Fresh star-lobster (star brand). Portland Packing Company, Portland, Me.
24926. Fresh lobster (*Homarus americanus*). Wm. Underwood & Co., Boston, Mass.
25834. Canned lobster (*Homarus americanus*). Kemp, Day & Co., New York.
24933. Original deviled lobster (*Homarus americanus*). Wm. Underwood & Co., Boston, Mass.
26578. Pickled lobsters (*Homarus americanus*). Cape Cod. B. J. M. Carley, New York.
26576. Pickled prawns. Savannah, Ga. B. J. M. Carley.

Cirripedia.

Injurious:

a. By dulling the edge of knives and spades employed in "cutting in" whale blubber:

2270. Whale barnacle (*Coronula diadema*, Lam.) on dried skin of "humpback" whale. New England coast. U. S. Fish Commission.

b. By obstructing the progression of vessels upon which they affix themselves:

2271. Barnacles (*Balanus rugatus*, &c.). California. H. Hemphill.

ANNULOSA.

Annelida.—WORMS AND LEECHES.

A. Useful:

1. In surgery and medicine:

3226. Leech (*Macrobdella decora*, Verrill). New Haven, Conn. A. E. Verrill.

3227. Ditto. (*Macrobdella* sp.) Mountain Lake, Cal. H. Hemphill.

2. For bait in fishing:

3228. Earthworm (*Lumbricus terrestris*, L.). Washington, D. C. W. Palmer.

3229. Sea-worm (*Nereis* sp.?). San Francisco, Cal. H. Hemphill.

3. For food:

19713. Dried worms (*Ephydra* sp.). Prepared for food by the Monachee Pi-Ute Indians. Owen's Lake, Cal. Stephen Powers.

19714. Dried worms. Used in making soup by the Monachee Pi-Ute Indians. Owen's Lake, Cal. Stephen Powers.

B. Injurious:

1. By boring into and destroying oyster-shells:

32963*a*. Oyster-shell, showing ravages (of *Heteronereis?*). South Norwalk, Conn. Hoyt Brothers.

NOTE.—Insects and larvæ, commonly called worms, affecting chiefly agricultural interests, are not here included.

RADIATA.

Radiates.—SEA-URCHINS, STARFISH, CORALS, MEDUSÆ, ETC.

N. B. Strictly ornamental corals and gorgonias, having no special useful application, have, for the same reasons which necessitated the exclusion of the solely ornamental shells, been here omitted.

A. Useful:

1. Food-producing:

3226. Trepang; Bêche-de-mer (*Holothuria* sp.?). San Diego, Cal. H. Hemphill.

3212. Sea-urchin (*Strongylocentrotus drœbachiensis*). New England coast. U. S. Fish Commission.
3146. Ditto. (*Toxopneustes* sp.) Southern United States. Dr. William Stimpson.
3145. Ditto. (*T. franciscorum*, Ag.) Alaska to California. F. Bischoff.

B. Injurious:

1. Destroying oysters, clams, &c.:

3214. Starfish (*Asterias vulgaris*, Stm.). Portland, Me. U. S. Fish Commission.
3149. Ditto. (*Ast. arcnicola*, Stm.) Massachusetts Bay. Dr. William Stimpson.
3213. Ditto. Long Island Sound. U. S. Fish Commission.
3150. Ditto. South Norwalk, Conn. Hoyt Brothers.
3151. Ditto. In act of destroying oysters. South Norwalk, Conn. Hoyt Brothers.

2. By their urticating powers annoying bathers and "fouling" nets and fishing lines with slime—various *Acalephs*.

PROTOZOA.

Protozoans.—SPONGES, ETC.

Useful:

1. For conveyance of fluids requiring an elastic and temporary menstruum, and as a detergent:

3210. Sponge (on bougie). Boston, Mass. J. A. Levey.
3206–9. Sponge (*Spongia barbara*, D. & M.). Florida Keys and Bahamas. Isaacs & Co., sponge-dealers, New York.

3205. Ditto. (*Spongia graminea*, Hyatt). (Prepared by cleansing for use.) Key West. Boston Soc. Nat. Hist.
3203–4. Ditto. (Dried in natural condition.) Key West. Boston Soc. Nat. Hist.
3152–3. } Ditto. (*S. dura*, var. *densa*, Hyatt.) Florida Keys. Isaacs & Co.
3167. }
3154–66. Ditto. (*S. dura*, var. *gravida*, Hyatt.) Florida Keys. Isaacs & Co.
3172. Ditto. Dried in natural state. (*Aplysina aurea*, Hyatt.) Bahamas. Boston Soc. Nat. Hist.
3168–71. Ditto. (Cleansed.) (*S. dura*, var. *punctata*, Hyatt.) Florida Keys. Isaacs & Co.
3177. Ditto. (Dried in natural state.) (*S. cerebriformis*, Hyatt.) Key West. Boston Soc. Nat. Hist.
3173–76. Ditto. (Cleansed.) Key West and Bahamas. Isaacs & Co.
3178–9. Ditto. (*S. tubulifera*, Lam.). Florida and Bahamas. Isaacs & Co.
3180–85. Ditto. (*S. tubulifera*, var. *rotunda*, Hyatt.) Florida Keys and Bahamas. Isaacs & Co.
3186. Ditto. (Dried in natural condition.) Florida Keys. Boston Soc. Nat. Hist.

3189–90. Ditto. (Cleansed.) (*S. tubulifera*, var. *disciformis*, Hyatt.) Florida Keys and Bahamas. Isaacs & Co.

3192–96. Ditto. (*S. gossypina*, D. & M., var. *hirsuta*.) Florida Keys and Bahamas. Isaacs & Co.

3197. Ditto. (*S. gossypina*, var. *dendritica*.) Florida Keys and Bahamas. Isaacs & Co.

3198–3202. Ditto. (*S. gossypina*, var. *porosa*.) Florida Keys and Bahamas. Isaacs & Co.

2. Useful as an elastic medium or absorbent:

3213*a*. Sponge prepared for use as lint in surgery. Wm. B. Moses, Washington, D. C.

3211. Ditto. For stuffing cushions and packing. Florida. Jas. Richardson.

3212*a*. Ditto. Prepared for stuffing cushions, mattresses, &c. Florida. Wm. B. Moses, Washington, D. C.

Injurious:

1. By destroying oysters:

3215. Boring sponge (*Cliona sulphurea*, Verrill). Mature form, after oyster-shell has disintegrated. Vineyard Sound, Mass. U. S. Fish Commission.

32979. Boring sponge. Shells of Pecten showing ravages. Castine, Me. A. R. Crittenden.

32980. Ditto. Castine, Me. L. J. Heath.

32820. Ditto. Showing effect on oyster-shell. New York Bay. B. J. M. Carley.

3147. Ditto. Showing various stages in shell. Shrewsbury River, N. J. B. J. M. Carley.

Rhizopods.

Useful; the fossil forms being largely employed as a polishing powder under the name of "Tripoli" or "infusorial earth"; as a menstruum for nitro-glycerine, in the manufacture of dynamite and other explosives; and also in the manufacture of "stone china" and pottery. The valuable quality in nearly all cases is the contained silica.

MISCELLANEOUS PRODUCTS OF SEA OR SHORE, NOT OF AN ANIMAL NATURE.

Plants:

a. Lichens:

29316. Orchilla (*Rocella tinctoria*), in its natural condition as gathered from rocks and branches of plants. West coast of North America. W. A. Ross & Bro., New York.

29313. "Archil liquor," derived from Orchilla, and extensively used as a dyestuff. West coast of North America. W. A. Ross & Bro., New York.

29314. "Cudbear." Product of a lichen (*Lecanora*), extensively applied as a dye-stuff. Western coast of North America. W. A. Ross & Bro., New York.

b. Algæ:

1. Having economical applications:

**Available as food.*

——. Irish moss (*Chondrus crispus*, L.), affording gelatine. New England coast. Dr. W. G. Farlow.

——. Western dulse (*Schizymenia edulis*, Ag.). West coast United States. Rev. E. Hall.

——. Dulse (*Rhodymenia palmata*, Grev.), used for food. New England coast. Dr. W. G. Farlow.

——. Laver (*Porphyra vulgaris*, Ag.), used for food. New England coast. Dr. W. G. Farlow.

——. Badderlocks (*Alaria esculenta*, Grev.). Available for food. Cape Cod northward.

***Employed in the manufacture of fertilizers, iodine and bromine, or "artificial staghorn" (Laminaria) articles.*

——. Rockweed (*Fucus vesiculosus*, L. & C.). New England coast. Dr. W. G. Farlow.

——. Bull-head kelp (*Nereocystis Lütkeana*, P. & M.). Stems made by Indians into fishing-lines. Northwest coast of America. W. H. Dall.

——. Specimens of lines made of this material. [See ethnological and fishing-implement series.]

29373. Devil's apron (*Laminaria digitata*), dried stems for making "tents." Newfoundland. Dr. E. R. Squibb.

29373*a*. "Sponge tents" used in surgery, made from dried *Laminaria* stems.

29373*b*. Paper-knife, made of "artificial staghorn" or dried *Laminaria* (*longicruris*), by J. H. Batchelder, Cambridge, Mass.

2. Ornamental algæ:

The following series, prepared by Dr. W. G. Farlow, comprises specimens collected by Mr. F. W. Hooper and Dr. Palmer, at Key West; by Dr. Farlow on the New England coast; by Prof. D. C. Eaton from various sources; by A. R. Young, at New York; Mrs. A. S. Davis, at Cape Ann; Mrs. Beebe, at Gloucester, Mass.; Mrs. B. D. Halstead, at Swampscott; Mr. H. Averill, at New York; Dr. L. R. Gibbes, in South Carolina; Miss M. A. Booth, at Orient, L. I.; and from California and Oregon by Dr. C. L. Anderson, Capt. I. Stratton, Rev. E. Hall, Mr. H. Hemphill, D. Cleveland, and Mr. W. H. Dall:

AMANSIA MULTIFIDA, Lmx. Key West.
DASYA GIBBESII, Harv. Key West.
DASYA ELEGANS, Ag. *Chenille.* Cape Cod.
DASYA RAMOSISSIMA, Harv. Key West.
DASYA HARVEYI, Ashmead. Key West.
DASYA MOLLIS, Harv. Key West.
DASYA MUCRONATA, Harv. Key West.
DASYA WURDEMANNI, Bailey. Key West.
DASYA CALLITHAMNION, Harv. San Diego.

DASYA TUMANOWICZI, Gatty. Key West.
DASYA LOPHOCLADOS, Mont. Key West.
DASYA PLUMOSA, Bail. and Harv. Santa Cruz, Cal.
BOSTRYCHIA MONTAGNEI, Harv. Key West.
BOSTRYCHIA CALAMISTRATA, Mont. Key West.
BOSTRYCHIA MORITZIANA, Mont. Florida.
POLYSIPHONIA URCEOLATA, Grev. Nahant, Mass. Var. *formosa*, New England.
POLYSIPHONIA HAVANENSIS, Mont. Var. *Binneyi*, Ag., Key West.
POLYSIPHONIA FERULACEA, Ag. Key West.
POLYSIPHONIA OLNEYI, Harv. *Dough-balls*. Long Island Sound.
POLYSIPHONIA HARVEYI, Bail. *Nigger-hair*. Wood's Holl, Mass.
POLYSIPHONIA ELONGATA, Grev. *Lobster-claws*. Gay Head, Mass.
POLYSIPHONIA VIOLACEA, Grev. Wood's Holl, Mass.
POLYSIPHONIA FIBRILLOSA, Grev. Wood's Holl, Mass.
POLYSIPHONIA VARIEGATA, Ag. Wood's Holl, Mass.
POLYSIPHONIA PENNATA, Ag. California.
POLYSIPHONIA PARASITICA, Grev. California. Var. *dendroidea*, Ag., California.
POLYSIPHONIA BAILEYI, Ag. Pacific coast.
POLYSIPHONIA PECTEN-VENERIS, Harv. Florida.
POLYSIPHONIA ATRORUBESCENS, Grev. Wood's Holl, Mass.
POLYSIPHONIA BIPINNATA, Post. and Rupr. West coast.
POLYSIPHONIA WOODII, Harv. West coast.
POLYSIPHONIA NIGRESCENS, Grev.
POLYSIPHONIA FASTIGIATA, Grev. Nahant, Mass.
ODONTHALIA ALEUTICA, Ag. Oregon.
ODONTHALIA LYALLII, Harv. Neeah Bay, W. T.
RHODOMELA LARIX, Ag. California.
RHODOMELA FLOCCOSA, Ag. Aleutian Islands.
RHODOMELA SUBFUSCA, Ag. Gloucester, Mass. Var. *gracilis*, same limits. Var. *Rochei*, Long Island Sound.
DIGENIA SIMPLEX, Ag. Key West.
BRYOTHAMNION TRIANGULARE, Ag. Key West.
BRYOTHAMNION SEAFORTHII, Ag. Florida.
ALSIDIUM BLODGETTII, Harv. Key West, Fla.
ACANTHOPHORA THIERII, Lmx. Florida to Brazil; Pacific Ocean.
ACANTHOPHORA MUSCOIDES, Ag. Florida.
CHONDRIA DASYPHYLLA, Ag. Cape Cod.
CHONDRIA STRIOLATA, Ag. (*C. Baileyana*, Mont.) Cape Cod.
CHONDRIA TENUISSIMA, Ag. Wood's Holl, Mass.
CHONDRIA LITTORALIS, Harv. Wood's Holl, Mass.
CHONDRIA ATROPURPUREA, Harv. Key West, Fla.
LAURENCIA PINNATIFIDA, Lmx. *Pepper-dulse*. California.
LAURENCIA VIRGATA, Ag. California.
LAURENCIA OBTUSA, Lmx. Florida.
LAURENCIA IMPLICATA, Ag. Key West.
LAURENCIA CERVICORNIS, Harv. Key West; San Diego, Cal.
LAURENCIA GEMMIFERA, Harv. Florida.
LAURENCIA PAPILLOSA, Grev. Florida.
LAURENCIA PANICULATA, Ag. San Diego, Cal.
CHYLOCLADIA OVALIS, Hook. (*Lomentaria*, Endl.) California.
GRINNELLIA AMERICANA, Harv. Wood's Holl, Mass.
DELESSERIA SINUOSA, Lmx. Gloucester, Mass.
DELESSERIA QUERCIFOLIA, Bory. California.

DELESSERIA ALATA, Lmx. Gloucester, Mass.
DELESSERIA HYPOGLOSSUM, Larmx. Chleston, S. C.
DELESSERIA TENUIFOLIA, Harv. Key West.
DELESSERIA INVOLVENS, Harv. Key West.
DELESSERIA LEPRIEURII, Mont. New York.
DELESSERIA DECIPIENS, Ag. West coast. Neeah Bay, W. T.
NITOPHYLLUM PUNCTATUM, var. *ocellatum*, Grev. Key West.
NITOPHYLLUM SPECTABILE, Eaton, mss. California.
NITOPHYLLUM LACERATUM, Grev. California.
NITOPHYLLUM LATISSIMUM, Ag. California.
NITOPHYLLUM AREOLATUM, Eaton, mss. California.
NITOPHYLLUM (NEUROGLOSSUM) ANDERSONII, Ag. California.
NITOPHYLLUM RUPRECHTIANUM, Ag. West coast.
CALLIBLEPHARIS CILIATA, Kütz. Cape Ann, Mass.
GRACILARIA MULTIPARTITA, Ag. Var. *angustissima*, Harv. New York.
GRACILARIA CERVICORNIS, Ag. Key West.
GRACILARIA CONFERVOIDES, Grev. Florida; California.
GRACILARIA ARMATA, Ag. Key West.
CORALLINA OFFICINALIS, L. Cape Ann.
CORALLINA SQUAMATA, Ellis and Sol. San Diego, California.
JANIA RUBENS, Lmx. San Diego, California.
JANIA CAPILLACEA, Harv. Key West.
AMPHIROA FRAGILLISSIMA, Lmx. Florida.
AMPHIROA NODULOSA, Kütz. Florida.
AMPHIROA DEBILIS, Kütz. Florida.
AMPHIROA CALIFORNICA, Decaisne. West coast.
MELOBESIA FARINOSA, Lmx. East coast.
MELOBESIA PUSTULATA, Lmx. Wood's Holl, Mass.
LITHOTHAMNION POLYMORPHUM, Aresch. Eastport, Me.
HILDENBRANDTIA ROSEA, Kütz. Eastport, Me.
GELIDIUM CORNEUM, Lmx. Florida; New Haven, Conn.
GELIDIUM CARTILAGINEUM, Grev. San Diego, Cal.
GELIDIUM COULTERI, Harv. California.
WURDEMANNIA SETACEA, Harv. Key West.
EUCHEUMA ISIFORME, Ag. Key West.
EUCHEUMA? ACANTHOCLADUM, Ag. (*Chrysymenia*, Harv.). Key West.
HYPNEA MUSCIFORMIS, Lmx. Wood's Holl, Mass.
HYPNEA CORNUTA, Ag. Key West.
RHODYMENIA PALMATA, Grev. *Common dulse.* Swampscott, Mass.
RHODYMENIA PALMETTA, Grev. California.
RHODYMENIA CORALLINA, Grev. California.
EUTHORA CRISTATA, Ag. Gloucester, Mass.
PLOCAMIUM COCCINEUM, Lyngb. Var. *flexuosum*. West coast.
STENOGRAMMA INTERRUPTA, Mont. California.
PIKEA CALIFORNICA, Harv. California.
CHAMPIA PARVULA, Harv. Noank, Conn.
LOMENTARIA BAILEYANA, Farlow (*Chylocladia*, Harv.). New York Bay.
LOMENTARIA ROSEA, Thuret. Gay Head, Mass.
RHABDONIA TENERA, Ag. (*Solieria chordalis*, Harv.) Wood's Holl, Mass.
RHABDONIA COULTERI, Harv. California.
CORDYLOCLADIA CONFERTA, Ag. San Diego, Cal.
POLYIDES ROTUNDUS, Ag. Cape Ann, Mass.
PEYSSONNELIA ATRO-PURPUREA, Crouan?. Key West.
NEMALION MULTIFIDUM, Ag. Watch Hill, R. I.
SCINAIA FURCELLATA, Bivon. Gay Head, Mass.

LIAGORA VALIDA, Harv. Florida.
LIAGORA PINNATA, Harv. Florida.
LIAGORA PULVERULENTA, Ag. Key West.
WRANGELIA PENICILLATA, Ag. Key West.
PHYLLOPHORA BRODIÆI, Ag. Long Island Sound.
PHYLLOPHORA MEMBRANIFOLIA, Ag. Long Island Sound.
GYMNOGONGRUS NORVEGICUS, Ag. (inc. *G. Torreyi*, Ag.). Peak's Island, Me.
GYMNOGONGRUS TENUIS, Ag. California.
GYMNOGONGRUS GRIFFITHSIÆ, Ag. California.
GYMNOGONGRUS LINEARIS, Ag. California.
AHNFELTIA GIGARTINOIDES, Ag. West coast.
AHNFELTIA PLICATA, Fr. Cape Ann, Mass.
CYSTOCLONIUM PURPURASCENS, Kütz. Block Island, New York.
CALLOPHYLLIS VARIEGATA, Ag. California.
CALLOPHYLLIS OBTUSIFOLIA, Ag. San Diego, Cal.
CALLOPHYLLIS DISCIGERA, Ag. California.
GIGARTINA ACICULARIS, Lmx. Florida.
GIGARTINA CANALICULATA, Harv. West coast.
GIGARTINA MAMILLOSA, Ag. Portland, Me.; Santa Cruz, Cal.
GIGARTINA MICROPHYLLA, Harv., and var. *horrida*. California.
GIGARTINA RADULA, Ag. West coast.
CHONDRUS CRISPUS, Lyngb. *Irish moss*. Cape Ann, Mass. Very common.
CHONDRUS AFFINIS, Harv. California.
IRIDÆA LAMINARIOIDES, Bory. (including *Iridæa minor* and *Iridæa dichotoma*). West coast.
ENDOCLADIA MURICATA, Ag. West coast.
CRYPTONEMIA CRENULATA, Ag. Key West.
CHRYSYMENIA HALYMENIOIDES, Harv. Key West.
CHRYSYMENIA UVARIA, Ag. Key West.
HALYMENIA LIGULATA, Ag. Var. *Californica;* Santa Cruz, Cal.
HALYMENIA FLORESIA, Ag. Key West.
PRIONITIS LANCEOLATA, Harv. West coast.
PRIONITIS ANDERSONII, Eaton, mss. Santa Cruz, Cal.
SCHIZYMENIA EDULIS, Ag. Oregon.
SCHIZYMENIA? COCCINEA, Harv. Santa Cruz, Cal.
GRATELOUPIA GIBBESII, Harv. Charleston, S. C.
GRATELOUPIA CUTLERIÆ, Kütz. California.
GRATELOUPIA FILICINA, Ag. Florida.
HALOSACCION HYDROPHORA, Ag. West coast.
HALOSACCION FUCICOLA, Post. and Rupr. West coast.
HALOSACCION RAMENTACEUM, Ag. Eastport, Me.
SPYRIDIA ACULEATA, Kütz. Florida.
SPYRIDIA FILAMENTOSA, Harv. Wood's Holl, Mass.
MICROCLADIA COULTERI, Harv. West coast.
MICROCLADIA CALIFORNICA, Farlow. California.
MICROCLADIA BOREALIS, Rupr. West coast.
CENTROCERAS CLAVULATUM, Ag. Key West.
CENTROCERAS EATONIANUM, Farlow. West coast.
CERAMIUM NITENS, Ag. Key West.
CERAMIUM RUBRUM, Ag. East coast.
CERAMIUM DESLONGCHAMPSII, Ch. Eastport, Me.
CERAMIUM DIAPHANUM, Roth. California.
CERAMIUM STRICTUM, Harv. New England.
CERAMIUM YOUNGII, Farlow, mss. Canarsie, L. I.
CERAMIUM TENUISSIMUM, Lyngb. Key West.

CERAMIUM FASTIGIATUM, Harv. Southern New England.
CERAMIUM ———. Key West.
PTILOTA DENSA, Ag. California.
PTILOTA HYPNOIDES, Harv. California.
PTILOTA PLUMOSA, Ag. Var. *filicina*, west coast. Var. *serrata*. Eastport, Me., and Neeah Bay, W. T.
PTILOTA ELEGANS, Bonnem. New York.
GLOIOSIPHONIA CAPILLARIS, Carm. Cape Ann, Mass.
CROUANIA ATTENUATA, J. Ag. Key West.
GRIFFITHSIA BORNETTIANA, Farl. Wood's Holl, Mass.
CALLITHAMNION TETRAGONUM, Ag. Orient, L. I.
CALLITHAMNION BAILEYI, Harv. New York.
CALLITHAMNION PTILOPHORA, Eaton, mss. California.
CALLITHAMNION BORRERI, Ag. New Haven, Conn.
CALLITHAMNION BYSSOIDEUM, Arn. Long Island Sound.
CALLITHAMNION CORYMBOSUM, Ag. Beverly, Mass.
CALLITHAMNION VERSICOLOR, Ag., var. *seirospermum*, Harv. New York.
CALLITHAMNION PLUMULA, Lyngb. Gay Head, Mass.
CALLITHAMNION HETEROMORPHUM, Ag., mss. California.
CALLITHAMNION AMERICANUM, Harv. New York.
CALLITHAMNION PYLAISÆI, Mont. Gloucester, Mass.
CALLITHAMNION FLOCCOSUM, Ag. Var. *pacificum*, Harv. Neeah, Bay, W. T.
CALLITHAMNION CRUCIATUM, Ag. New York.
CALLITHAMNION LEJOLISIA, Farlow, mss. San Diego, Cal.
CALLITHAMNION TURNERI, Ag. New York.
CALLITHAMNION ROTHII, Lyngb. New England coast.
CALLITHAMNION ROSEUM, Lyng. New York.
PORPHYRA VULGARIS, Ag. *Laver*. East coast.
BANGIA FUSCOPURPUREA, Lyngb. East coast.
CHANTRANSIA EFFLORESCENS, Thur. Gay Head, Mass.
CHANTRANSIA VIRGATULA, Thuret. Portland, Me.
ERYTHROTRICHIA CERAMICOLA, Aresch. Cape Ann, Mass.
PADINA PAVONIA, Lmx. *Peacock's-tail*. Key West, Fla.
ZONARIA LOBATA, Ag. Key West.
ZONARIA FLAVA, Ag. San Diego, Cal.
TAONIA SCHRŒDERI, Ag. Florida.
DICTYOTA FASCIOLA, Lmx. Florida; Mediterranean Sea.
DICTYOTA DICHOTOMA, D. C. Charleston.
DICTYOTA CILIATA, Ag. Key West.
DICTYOTA KUNTHII, Ag. San Diego, Cal.
DICTYOTA ACUTILOBA, Ag. Key West.
SARGASSUM VULGARE, Ag. Atlantic Ocean.
SARGASSUM BACCIFERUM, Ag. *Gulf-weed*. Gulf Stream.
SARGASSUM DENTIFOLLIUM, Ag. Key West.
SARGASSUM AGARDIANUM, Farlow, mss. San Diego, Cal.
TURBINARIA VULGARIS, Ag. Key West.
FUCUS FASTIGIATUS, Ag. West coast.
FUCUS DISTICHUS, *L.* (*F. filiformis*, Gm.). Swampscott, Mass.
FUCUS FURCATUS, Ag. Marblehead, Mass.
FUCUS VESICULOSUS, L. *Rock-weed*. Swampscott, Mass.
FUCUS SERRATUS, L. Nova Scotia.
NEREOCYSTIS LÜTKEANA, Post. and Rupr. *Great bladder-weed*. Monterey, Cal., and northward.
ALARIA ESCULENTA, Grev. *Badderlocks*. *Henware*. Cape Cod.

LAMINARIA SACCHARINA, Lmx. *Devil's apron; Kelp.* New York, northward; west coast; Europe; Japan?.
LAMINARIA LONGICRURIS, De la Pyl. *Devil's apron; Kelp.* New England.
LAMINARIA FLEXICAULIS, Le Jolis. *Devil's apron; Kelp.* New England.
AGARUM TURNERI, Post. and Rupr. *Sea-colander.* Nahant, Mass.
STILOPHORA RHIZODES, Ag. Vineyard Sound.
ASPEROCOCCUS SINUOSUS, Bory. Key West.
ASPEROCOCCUS ECHINATUS, Grev. New England coast.
HYDROCLATHRUS CANCELLATUS, Bory. Noank, Conn.
RALFSIA VERRUCOSA, Aresch. Nahant, Mass.
CHORDA FILUM, Stack. New York.
CHORDARIA FLAGELLIFORMIS, Ag. Eastport, Me.
CHORDARIA ABIETINA, Rupr. Santa Cruz, Cal.
CHORDARIA DIVARICATA, Ag. Gloucester, Mass.
CASTAGNEA VIRESCENS, Thuret. Wood's Holl, Mass.
LEATHESIA TUBERIFORMIS, Gray. Watch Hill, R. I.
ELACHISTA FUCICOLA, Fr. New England.
MYRIONEMA STRANGULANS, Grev. Wood's Holl, Mass.
MYRIONEMA LECLANCHERII, Harv. Gloucester, Mass.
CLADOSTEPHUS SPONGIOSUS, Ag. Newport, R. I.
CLADOSTEPHUS VERTICILLATUS, Ag. Gay Head, Mass.
SPHACELARIA FUSCA, Ag. On *Amphiroa Californica*, San Diego, Cal.
SPHACELARIA RADICANS, Ag. New England.
ECTOCARPUS FIRMUS, Ag. (*E. littoralis*, Harv.). New England.
ECTOCARPUS FARLOWII, Thuret. Peak's Island, Me.
ECTOCARPUS SILICULOSUS, Lyngb. Charleston, S. C.
ECTOCARPUS VIRIDIS, Harv. Orient, L. I.
ECTOCARPUS FASCICULATUS, Harv. New England coast.
ECTOCARPUS GRANULOSUS, Ag. Santa Cruz, Cal.
ECTOCARPUS HOOPERI, Harv. Greenport, L. I.
DESMARESTIA ACULEATA, Lmx. Eastport, Me.
DESMARESTIA VIRIDIS, Lmx. New York.
DESMARESTIA LIGULATA, Lmx. Monterey, Cal.
PUNCTARIA LATIFOLIA, Grev., and var. *zosteræ*, Le Jolis. Eastport, Me.
PUNCTARIA PLANTAGINEA, Grev. New England.
PHYLLITIS FASCIA, Ktz. Eastport, Me.
SCYTOSIPHON LOMENTARIUS, Ag. Eastport, Me.
CAULERPA PROLIFERA, Lmx. Florida.
CAULERPA CRASSIFOLIA, Ag., var. *Mexicana*. Florida.
CAULERPA PLUMARIS, Ag. Florida.
CAULERPA ASHMEADII, Harv. Key West.
CAULERPA ERICIFOLIA, Ag. Florida.
CAULERPA CUPRESSOIDES, Ag. Key West.
CAULERPA LANUGINOSA, Ag. Key West.
CAULERPA PASPALOIDES, Bory. Florida.
CAULERPA CLAVIFERA, Ag. Florida.
HALIMEDA OPUNTIA, Lmx. Florida.
HALIMEDA TUNA, Lmx. Florida.
HALIMEDA TRIDENS, Lmx. Key West.
UDOTEA FLABELLATA, Lmx. Key West.
UDOTEA CONGLUTINATA, Lmx. Key West.
CODIUM TOMENTOSUM, Stack. Florida; var. *damæcornis*. West coast.
CHLORODESMIS? Key West.
BRYOPSIS PLUMOSA, Lmx. Eastern coast.
BRYOPSIS HYPNOIDES, Lmx. Key West.

VAUCHERIA PILOBOLOIDES, Thuret. Wood's Holl, Mass.
DASYCLADUS OCCIDENTALIS, Harv. Florida.
DASYCLADUS CLAVÆFORMIS, Ag. Key West.
ACETABULARIA CRENULATA, Lmx. Florida.
CYMOPOLIA BARBATA, Lmx. Key West.
CHAMÆDORIS ANNULATA, Mont. Key West.
PENICILLUS DUMETOSUS, Dne. Florida; West Indies.
PENICILLUS CAPITATUS, Lmx. *Mermaid's shaving-brush.* Florida.
BLODGETTIA? CONFERVOIDES, Harv. Key West.
ANADYOMENE FLABELLATA, Lmx. Key West.
DICTYOSPHÆRIA FAVULOSA, Dne. Key West.
ASCOTHAMNION INTRICATUM, Kütz. Key West.
ENTEROMORPHA INTESTINALIS, Link. New England.
ENTEROMORPHA COMPRESSA, Grev. New England.
ENTEROMORPHA CLATHRATA, Grev. New England coast.
ULVA LATISSIMA, Linn. *Sea-lettuce.* New England coast.
ULVA FASCIATA, Delile. California.
CLADOPHORA MEMBRANACEA, Ag. Key West.
CLADOPHORA RUPESTRIS, L. Cape Ann, Mass.
CLADOPHORA ARCTA, Dillw. Cape Ann, Mass.
CLADOPHORA LANOSA, Roth. Orient, L. I.
CLADOPHORA UNCIALIS, Fl. Dan. New England coast.
CLADOPHORA LÆTEVIRENS, Dillw. Key West, Fla.
CLADOPHORA FRACTA, Fl. Dan. Eastern coast.
CHÆTOMORPHA PICQUOTIANA, Mont. Cape Ann, Mass.
CHÆTOMORPHA MELAGONIUM, Web. and Mohr. Cape Ann, Mass.
CHÆTOMORPHA SUTORIA, Berk. Stonington, Conn.
CHÆTOMORPHA BRACHYGONA, Harv. Key West.
CHÆTOMORPHA TORTUOSA, Dillw. Eastport, Me.
HORMOTRICHUM YOUNGANUM, Dillw. New England coast.
LYNGBYA MAJUSCULA, Harv. Cape Cod.
LYNGBYA FERRUGINEA, Ag. New England coast.
LYNGBYA KÜTZUNGIANA, Thur. Eastern coast.
CALOTHRIX CONFERVICOLA, Ag. East coast.
CALOTHRIX SCOPULORUM, Ag. East coast.
SPHÆROZYGA CARMICHAELII, Harv. Wood's Holl, Mass.
PETROCELIS CRUENTA, Ag. Eastport, Me.
SPIRULINA TENUISSIMA, Kütz. Eastport, Me.
CHNOÖSPORA FASTIGIATA, Ag. San Diego, Cal.
HORMACTIS FARLOWI, Bornet. East coast.

Inorganic materials:

——. Scouring-sand. Impure silex for domestic use. Alameda, Cal. H. Hemphill.
——. Glassmaker's-sand. Pure silex. Isle of Shoals, N. H.

COMMERCIAL STATISTICS OF ANIMAL PRODUCTS IN THE UNITED STATES: A REVIEW OF A PORTION OF THE REPORT OF THE CHIEF OF THE BUREAU OF STATISTICS FOR THE FISCAL YEAR ENDING JUNE 30, 1877.

By G. Brown Goode.

The following review of the character and commercial values of animal products used or produced in the United States is intended to supplement and explain in part the preceding "Catalogue of the collection illustrating the animal resources of the United States," made under the direction of the United States National Museum for the International Exhibition of 1876. The statistics have been arranged with a view to a concise exhibition of the extent and location of the trade in all substances of animal origin. The classification is uniform with that employed in the catalogue.

An attempt is made to show—

1. The amount of imports, the countries from which the products are imported, and the ports through which the import entries are chiefly made.

2. The domestic consumption of foreign products. The table of imports entered into consumption is more detailed than any of the others, and from this have been taken many statements which were not elsewhere given, as, for instance, the amounts of coral, whalebone, chemicals, and specimens of natural history.

3. The exports of domestic products, the ports from which they were chiefly shipped, and the countries to which they are sent.

4. The statistics of foreign exports or of the exports of products not directly of domestic origin.

No account has been made of the indirect and transshipment trade.

LIVING ANIMALS.

The total value of living animals brought into the United States does not fall far below $2,200,000.

The value of the miscellaneous importations of living animals is placed at $1,648,465. Of this amount Quebec, Ontario, &c., supply $1,452,457, and Mexico $129,897 (no doubt chiefly sheep), Nova Scotia and New Brunswick send $30,124, Germany $13,262, British Columbia $13,762, England $6,184. The remainder comes from the British East Indies ($1,389), Cuba ($818), Brazil ($133), Scotland, Honduras, Belgium, Chili, China, France, Guiana, Colombia, and Uruguay. The latter countries probably send chiefly animals for menageries and gardens.

Animals for breeding purposes are imported to the amount of $419,170. The larger proportion ($291,960) comes from the British Provinces

through the Lake ports. New York, with its extensive shipments from Europe, receives the next proportionate share ($111,501), then San Francisco ($4,708), Boston ($3,029), Baltimore ($2,113), Philadelphia ($519), and New Orleans ($200).

The teams of emigrants have the right of free entry. The yearly return of entries is placed at $26,070. The greater proportion ($23,520) appears to come from the British Provinces through the Lake ports.

The imports of birds are valued at $109,879. Of this amount, $71,989 comes to New York, and consists principally, no doubt, of singing birds. The Provinces send $38,328, probably, for the most part, fowls.

Leeches are imported to the amount of $4,227. All come through New York, except $133 worth through New Orleans.

The following table, compiled from the "Statement showing quantities and values of foreign merchandise entered into consumption in the United States during the fiscal year ended June 30, 1877, &c." (No. 20, pp. 446–505), while it necessarily does not tally with the figures already given, is instructive, since it shows in fuller detail the numbers and character of the imports of foreign animals:

Description of animal.	Number.	Value.
Horses	9,240	$602,513
Cattle	31,893	314,094
Sheep	282,432	674,883
Hogs	4,534	9,876
Animals for breeding purposes	5,370	416,476
Fowls, land and water	.....	36,793
Birds	.....	73,187
Leeches	.....	4,288
Animals not elsewhere specified	.....	27,737
Total	.....	2,159,847

The domestic exports of living animals are valued at $3,306,308, as shown in the following table:

Description of animal.	Number.	Value.
Horses	2,042	$301,134
Mules	3,441	478,434
Horned cattle	50,001	1,593,080
Sheep	179,017	234,480
Hogs	65,107	699,189
Total	.....	3,306,308

The largest number of horses is shipped from New York (727), next from Brazos de Santiago, Tex. (363), Minnesota (196), San Diego, Cal. (195), Corpus Christi, Tex. (82), Puget Sound, Washington (66), San Francisco (52), and Baltimore (53). The horses shipped from San Francisco are most valuable, being worth $500 on an average; those from New York $150; those from Texas $40.

The principal exports of horses are to Mexico (603) chiefly from Texas, Quebec, Ontario, &c. (391), the British West Indies and Honduras (232), Cuba (157), and the French West Indies and French Guiana (129).

Mules are shipped in the largest numbers from New York (2,058), New Orleans, La. (1,036), Brazos de Santiago, Tex. (116), Saluria, Tex. (92), and Galveston, Tex. (90). They are sent chiefly to the British West Indies and Honduras (1,541), Cuba (1,018), the French West Indies and Guiana (252), the Central American States (210), British Guiana (218), and Mexico (134).

Horned cattle are shipped chiefly from Texas (20,396), Key West, Fla. (9,071), Minnesota (6,615), New York (4,863), Huron, Mich. (4,748), Boston (1,566), Philadelphia (700), Puget Sound, W. T. (611), Detroit, Mich. (543), and San Diego, Cal. (685). They are sent chiefly to Cuba (27,388), Quebec, Ontario, &c. (12,020), England (4,991), Liberia (2,809), and to the British West Indies and Honduras (1,741), the Bermudas taking a large share of the latter.

Sheep are sent principally from Texas (108,747), California (53,438), Washington Territory (9,484), and New York (4,744), and find their way mostly to Mexico (161,549), British Columbia (9,484), British West Indies, (2,299), England (2,692), and Quebec, &c. (1,003). It is sufficiently evident that Texas and California send to Mexico, Washington Territory to British Columbia, and New York and the Atlantic ports to England and the West Indies.

Hogs are exported largely from Detroit, Mich. (34,504), Huron, Mich. (28,508), and Minnesota (339); also, from Puget Sound, W. T., to the British Provinces. Key West, Fla., sends about 230 to Cuba, and Texas 348 to Mexico.

There is a foreign export of living animals to the value of $22,970, chiefly to England ($12,136) and the British West Indies ($8,176). It is chiefly from New York ($20,722).

FOOD PRODUCTS, EXCEPT FISH.

The import entries of food products are placed at $724,452. New York is the chief receptacle of these imports ($508,905), followed by the ports on the Canadian border ($173,007), San Francisco ($53,760), Philadelphia ($32,111), New Orleans ($7,400), Boston ($5,253), and Key West, Fla. ($2,336).

The receipts from Canada ($113,191) correspond nearly to the amount given for the northern border ports, those from China ($43,331) to the entries of San Francisco, and those from Cuba ($2,846) to the entries of Florida. New York and Philadelphia receive nearly all the remainder, which is principally sent by Germany ($325,693), England ($65,164), France ($63,119), Belgium (54,537), the Netherlands ($40,145), Italy ($11,957), and Mexico ($2,679).

The total value of the import of honey is $61,205, of which New York receives the principal share ($34,693), then New Orleans ($13,483) and Boston ($8,019).

Sausages, sausage-skins, and Bologna sausages are imported to the

value of $83,187, of which New York receives over $80,000 and New Orleans over $1,300.

Condensed eggs come only to New York, which imports to the value of $2,529.

Milk comes to the Lake ports to the value of $2,062.

The quantities of each article entered into consumption are shown in the following table:

Articles.	Amount.	Value.
Beef ..... pounds..	213,909	$15,540 92
Mutton	.....	2,413 80
Pork ..... pounds..	42,418	3,111 70
Venison	.....	824 66
Poultry	.....	33,022 94
Salted tongues	.....	112 00
Tripe	.....	116 00
Sausage-skins	.....	55,928 00
Bologna sausages	.....	28,948 40
Bacon and hams ..... pounds..	73,773	14,193 35
Prepared meats, game, and poultry, sealed or unsealed, in cans or otherwise...	.....	28,289 80
Lard ..... pounds..	12,524	1,166 74
Extract of meat	.....	38,124 00
Eggs ..... dozens..	5,048,900	617,643 59
Eggs, condensed	.....	1,873 00
Eggs, yolk of	.....	203 00
Milk, plain	.....	2,614 65
Milk, condensed or preserved	.....	2,798 00
Cheese ..... pounds..	2,719,451	464,001 23
Butter ..... do....	82,131	17,231 00
Honey ..... gallons..	27,017	16,473 50

The following tables show the imports of eggs by countries, and the corresponding entries by customs-districts.

Countries.	Eggs.		Countries.	Eggs.	
	Dozens.	*Dollars.*		*Dozens.*	*Dollars.*
China	126,800	8,716	British Columbia	100	6
Hong-Kong	3,066	183	British West Indies and British Honduras	300	69
Nova Scotia, New Brunswick, &c	948,703	109,823			
Quebec, Ontario, &c	3,969,302	498,825	Total	5,048,271	617,622

Districts.	Eggs.		Districts.	Eggs.	
	Dozens.	*Dollars.*		*Dozens.*	*Dollars.*
Aroostook, Me	5,000	750	Newport, R. I	753,817	86,815
Boston and Charlestown, Mass.	639,932	75,665	Norfolk and Portsmouth, Va...	934,427	108,320
Buffalo Creek, N. Y	1,325,608	180,222	Oregon, Oreg	45,347	4,818
Cape Vincent, N. Y	6,718	787	Pamlico, N. C	321,567	35,489
Champlain, N. Y	144,891	19,504	Pensacola, Fla	300	69
Cuyahoga, Ohio	25,539	2,595	Philadelphia, Pa	1,044	133
Detroit, Mich	77,019	9,038	Plymouth, Mass	3,200	383
Erie, Pa	918	107	Portsmouth, N. H	100	6
Frenchman's Bay, Me	10,269	1,096	Puget Sound, Wash	1,045	117
Genesee, N. Y	4,372	464	Richmond, Va	90	10
Georgetown, D. C	979	124	Saco, Me	126,800	8,716
Key West, Fla	1,665	208	Savannah, Ga	612,296	81,751
Michigan, Mich	118	24	Superior, Mich	100	10
Mobile, Ala	150	18	Vermont, Vt	3,066	183
Newark, N. J	70	8			
New Bedford, Mass	704	83	Total	5,048,271	617,622
New Orleans, La	1,120	109			

The amount of domestic exports is shown in the following table:

Articles.	Amount.	Value.
Beef, fresh ..... pounds..	49, 210, 990	$4, 552, 523
Beef, salted ..... do....	39, 155, 153	2, 950, 952
Mutton ..... do....	349, 368	36, 480
Pork ..... do....	69, 671, 894	6, 296, 414
Bacon and hams ..... do....	460, 057, 146	49, 512, 412
Preserved meats	.....	3, 939, 977
Lard ..... pounds..	234, 741, 223	25, 562, 665
Eggs ..... dozens..	32, 591	8, 429
Condensed milk	.....	123, 801
Cheese ..... pounds..	107, 364, 666	12, 709, 627
Butter	21, 527, 242	4, 424, 616
Total	.....	110, 108, 916

Fresh beef is shipped as follows:

Ports.	Amount.	Value.
New York ..... pounds..	39, 230, 400	$3, 608, 940
Philadelphia ..... do....	9, 896, 260	933, 249
Boston ..... do....	81, 000	10, 000
Portland ..... do....	3, 330	334
Total	49, 210, 990	4, 552, 523

All the fresh beef goes to England and Scotland. The former receives 39,906,940 pounds, valued at $3,614,779, and the latter 9,304,050 pounds, valued at $937,744.[1]

Salted beef goes principally from New York, Philadelphia, Boston, Baltimore, San Francisco, Portland, and Brazos de Santiago, Tex., and is sent to almost every country, England (19,727,882 pounds), Scotland (5,887,774), the British West Indies (2,774,804), Germany (2,185,990), Nova Scotia and New Brunswick (1,297,662), and British Guiana (1,042,150) receiving the largest proportion.

Mutton goes from New York to England (219,928 pounds) and Scotland (129,440).

Pork goes chiefly from New York (39,239,234 pounds), Boston (10,763,062), Huron, Mich. (7,748,660), Baltimore (3,961,045), Philadelphia (2,144,761), and Portland (2,930,359) to England (19,793,191), the British North American Provinces (17,990,540), the British West Indian Provinces (9,867,490), Scotland (2,847,346), Porto Rico (2,923,975), Germany (1,251,166), and the Dutch West Indies (1,126,169), as well as to all other quarters of the globe.

Bacon and hams go chiefly from New York (253,481,647 pounds), Boston (112,656,704), Philadelphia (72,738,161), Portland (10,541,136), Baltimore (6,146,098), and Huron, Mich. (2,275,004), to England (322,016,729), Scotland (31,193,969), Belgium (30,846,038), Germany (23,715,093), France (23,167,236), Cuba (10,813,912), Sweden and Norway (5,278,228), Netherlands (4,442,709), the British Provinces (3,632,464), the British West

[1] The Journal of the Royal Agricultural Society of England (1877) states the import of fresh beef from New York and Philadelphia in the first four months of 1877 (22,812,128 pounds) to have exceeded the whole import of the preceding year (19,838,895 pounds).

Indies (1,241,484), Spain (1,004,849), and in smaller quantities to almost every other country.

Preserved meats go chiefly from New York ($3,066,538), Galveston, Tex. ($359,063), Boston ($186,013), Oregon ($115,321), and San Francisco ($114,531) to England ($2,189,688), Scotland ($1,222,285), Germany ($159,059), France ($126,619), and the British West Indies ($46,480).

Lard goes chiefly from New York (166,924,255 pounds), Boston (29,380,349), Philadelphia (11,682,146), Baltimore (11,672,057), Portland (7,744,890), and Huron, Mich. (5,425,731), to England (66,196,750), Scotland (58,038,751), Belgium (23,882,271), France (23,788,669), Cuba (21,665,367), Scotland (8,096,852), British Provinces (6,115,553), Netherlands (5,597,166), United States of Colombia (4,549,995), Brazil (4,267,310), Venezuela, Spanish Africa, Hayti, and numerous other countries.

Eggs go from New York (12,211 dozens), Washington Territory (8,971), and the Canadian boundary (9,359) to the British Provinces (18,895), England (4,200), and Porto Rico (9,024).

Condensed milk goes from New York ($94,246), San Francisco ($24,606), and Baltimore ($1,325) to the British possessions in Australasia ($37,509), England ($30,727), Japan ($12,984), British West Indies ($8,592), China ($8,196), Cuba ($4,746), Brazil ($2,495), British Columbia ($2,465), Central America ($1,754), and Hayti ($1,248).

Cheese goes chiefly from New York (103,251,661 pounds), Philadelphia (1,456,868), Boston (1,172,522), and Huron, Mich. (1,116,320), to England (95,871,379), Scotland (1,100,099), and the English colonies, with small quantities to other countries.

Butter goes chiefly from New York (16,771,663 pounds), Boston (2,284,619), and Philadelphia (1,141,224) to England (10,504,640), Scotland (4,526,737), the British West Indies (1,277,945), Scotland (1,237,978), the British Provinces, Cuba, Porto Rico, Hayti, the Netherlands, Colombia, Venezuela, and the Danish West Indies.

The foreign exports of provisions amount to $64,478, chiefly from New York to England, Cuba, Mexico, British Columbia, Central and South America.

FISH.

The quantity of fish imported not subject to duty is shown in the following table. The total value is $1,400,736.

Countries.	Fresh, of all kinds.		Herring, pickled.		Mackerel, pickled.		All other.
	Pounds.	Dollars.	Barrels.	Dollars.	Barrels.	Dollars.	Dollars.
Nova Scotia, New Brunswick, &c	4,534,678	128,660	49,033	152,293	43,053	372,127	512,047
Quebec, Ontario, &c	2,570,033	94,780	2,218	13,242	13	133	27,337
British Columbia	1,270	58	.....	.....	.....	.....	.....
Newfoundland and Labrador	630,000	12,600	12,029	45,251	.....	.....	180
Hayti	.....	.....	.....	.....	.....	.....	392
Mexico	.....	.....	.....	.....	.....	.....	294
	7,735,981	236,098	63,280	210,786	43,066	372,260	540,300

The remainder of the import subject to duty is shown in the next table. The total value is $1,054,748.

Countries.	Sardines and anchovies, preserved in oil or otherwise.		Herring, pickled.		Mackerel, pickled.		All other.
	Pounds.	Dollars.	Pounds.	Dollars.	Pounds.	Dollars.	Dollars.
Belgium		20	167	2,368			16
China							47,089
Hong-Kong							761
France		685,164					913
French Possessions							4
Germany		5,266	4,726	61,676			7,098
England		77,317	98	1,277			7,120
Scotland			49	698			169
Nova Scotia, New Brunswick, &c			84	568	8	105	335
Quebec, Ontario, &c		6	24	35	6	43	19,691
British Columbia							2,439
British West Indies and British Honduras							5
Hawaii							35
Italy		969					176
Japan							175
Mexico							1,101
Netherlands		4,464	9,476	121,254			1,977
Spain		42					63
Cuba		83	2	22			1,356
Sweden and Norway			247	1,717			1,134
		773,331	14,873	189,615	14	148	91,654

The amounts of Canadian fish not liable to duty received in the various customs-districts are shown below:

Districts.	Fish, not of American fisheries.						
	Fresh, of all kinds.		Herring, pickled.		Mackerel, pickled.		All other, not elsewhere specified.
	Pounds.	Dollars.	Barrels.	Dollars.	Barrels.	Dollars.	Dollars.
Baltimore, Md.	1,500	85	1,884	7,605	38	314	392
Boston and Charlestown, Mass	473,556	15,465	46,150	157,108	34,730	300,690	176,147
Buffalo Creek, N. Y	378,869	13,154	328	1,862			
Cape Vincent, N. Y	474,798	15,433					
Champlain, N. Y	191,033	14,338	84	524	13	133	1,405
Cuyahoga, Ohio	12,720	509					
Detroit, Mich	652,703	19,084					
Erie, Pa	5,400	227					
Genesee, N. Y	36,240	1,443					
Gloucester, Mass			1,010	2,010			12,199
Huron, Mich	46,813	1,234	1,418	8,054			735
Key West, Fla							258
Machias, Me							116
Marblehead, Mass			6	12	4	15	99
Minnesota, Minn	200	10					
Newburyport, Mass							51
New York, N. Y	2,610,000	52,200	2,115	8,961	1,823	15,656	217,563
Niagara, N. Y	159,057	7,561					
Oswegatchie, N. Y	6,800	480					19
Oswego, N. Y	184,244	7,471					
Passamaquoddy, Me	1,331,353	63,844	6,726	9,885	4,974	44,031	55,320
Philadelphia, Pa							2,529
Portland and Falmouth, Me	747,579	9,676	2,661	11,163	1,480	11,405	87,721
Puget Sound, Wash	1,270	58					
Richmond, Va							24
Salem and Beverly, Mass			510	800	4	16	811
Sandusky, Ohio	212,540	3,545					
San Francisco, Cal							154
Savannah, Ga							50
Superior, Mich	118,614	2,459					830
Vermont, Vt	90,692	7,822	388	2,802			24,398
Waldoboro', Me							90
Willamette, Oreg							681
Total	7,735,981	236,098	63,280	210,786	43,066	372,260	581,592

The entries by customs-districts of fish not from Canada and dutiable are shown below:

Districts.	Fish, not of American fisheries. Herring, pickled.		Mackerel, pickled.		Sardines and anchovies preserved in oil.	All other, not elsewhere specified.
	Barrels.	Dollars.	Barrels.	Dollars.	Dollars.	Dollars.
Baltimore, Md	338	2,686	.....	.....	309	869
Boston and Charlestown, Mass	2	28	.....	.....	43,130	29
Brazos de Santiago, Tex	1	12	.....	.....	417	186
Buffalo Creek, N. Y	21	21	.....	.....	.....	2,952
Cape Vincent, N. Y	.....	.....	.....	.....	.....	5
Champlain, N. Y	1	6	.....	.....	.....	5
Cuyahoga, Ohio	.....	.....	.....	.....	.....	20
Detroit, Mich	.....	.....	.....	.....	.....	11,383
Galveston, Tex	.....	.....	.....	.....	1,682	.....
Genesee, N. Y	.....	.....	.....	.....	.....	6
Huron, Mich	3	8	6	43	2	4
Key West, Fla	.....	.....	.....	.....	67	1,118
Michigan, Mich	.....	.....	.....	.....	.....	52
New Orleans, La	45	770	.....	.....	65,188	4,554
New York, N. Y	14,428	185,926	.....	.....	578,923	11,379
Niagara, N. Y	.....	.....	.....	.....	.....	4,464
Oswegatchie, N. Y	.....	.....	.....	.....	.....	52
Philadelphia, Pa	34	158	8	105	1,475	1,083
San Diego, Cal	.....	.....	.....	.....	.....	864
Sandusky, Ohio	.....	.....	.....	.....	.....	238
San Francisco, Cal	.....	.....	.....	.....	82,134	51,085
Superior, Mich	.....	.....	.....	.....	4	310
Vermont, Vt	.....	.....	.....	.....	.....	200
Willamette, Oreg	.....	.....	.....	.....	.....	796
Total	14,873	189,615	14	148	773,331	91,654

The next table shows the amount of fish entered into consumption:

Description.	Quantity.	Dollars.
Fish, the product of the sea-fisheries of the Dominion of Canada, Newfoundland, &c., under treaty of May 8, 1871, act of March 1, 1875, and not dutiable:		
Fresh, for immediate consumption ..... pounds..	13,453,033	315,858 10
Herring, pickled ..... barrels..	61,791.50	207,090 55
Herring, dried or smoked ..... boxes..	316,570.50	39,459 42
Mackerel, pickled ..... barrels..	44,169.50	373,792 38
Salmon, pickled ..... do ..	21,677	62,393 00
Salmon, dried or smoked ..... pounds..	37,069	3,704 00
Shell-fish and turtles	.....	1,727 55
Other fish, pickled ..... barrels..	16,004.25	90,796 00
Other fish, dried or smoked ..... pounds..	5,645,357	229,061 00
Prepared or preserved in cans, or otherwise than in oil	.....	19,223 76
Fish, dutiable:		
Herrings, pickled or salted ..... barrels..	14,907	190,431 00
Fish, in oil or preserved, except anchovies or sardines	.....	15,996 00
Mackerel ..... barrels..	8½	105 00
Other fish, pickled ..... do	385¼	2,458 00
Other fish, pickled ..... pounds..	690,856	48,200 00
Fish prepared in cans	.....	7,271 60
Pickled salmon ..... barrels..	½	9 00
Sardines and anchovies, packed in oil or otherwise in tin boxes:		
Whole boxes, 5 × 4 × 3½ inches	3,813	2,238 00
Half boxes, 5 × 4 × 1⅞ inches	264,285	48,044 60
Quarter boxes, 4¾ × 3½ × 1½	7,985,401	661,597 25
In any other form	.....	11,018 25
		722,997 50
Oysters, dried	.....	13,447 00

The following table shows the amount of domestic exports of fish:

Description.	Quantity.	Dollars.
Fish, fresh		$114,338
Dried or smoked	pounds	15,964,800	791,785
Pickled	do	76,227	486,738
Other, cured	do	234,741,233	25,562,665
Oysters			260,660
			27,456,236

The following table shows the amount of exports by districts:

Districts.	Fish, dried or smoked.		Fish, fresh.	Fish, pickled.		Fish, other cured.	Oysters.	
	Cwt..	Dollars.	Dollars.	Barrels.	Dollars.	Dollars.	Bush.	Dolls.
Alaska, Alaska	13	66		2	16	142		108
Baltimore, Md	355	1,395		670	4,745	31,521		27,384
Bangor, Me	4	20				1,046		
Bath, Me				361	696			
Belfast, Me	6	20	84	42	258	47		
Boston and Charlestown, Mass	78,815	349,408	222	26,150	171,078	117,225		7,115
Brazos de Santiago, Tex	31	362	143	3	31	242		593
Buffalo Creek, N. Y								2,239
Cape Vincent, N. Y						60		3,987
Champlain, N. Y				100	1,000			14,443
Corpus Christi, Tex	2	21						4
Cuyahoga, Ohio	1	15				17		50
Detroit, Mich	312	1,260	2,071			5,021		4,858
Duluth, Minn				1	7			
Galveston, Tex						13		
Genesee, N. Y		4					467	
Gloucester, Mass	90	200		11,338	54,016	391		
Huron, Mich						2,491	468	
Key West, Fla			60,200			13,547		
Machias, Me	98	187						
Minnesota, Minn						1,861	1,921	837
New Bedford, Mass	67	329						
Newburyport, Mass	2,371	9,796						
New Haven, Conn	27	78						
New Orleans, La	36	195		9	68	2,193	39	10
New York, N. Y	64,002	368,779		24,357	188,415	313,642		
Norfolk, Va						19	164,552	10,297
Oregon, Oreg				299	2,709	693,125	320	
Oswegatchie, N. Y	12	72				2,582		
Oswego, N. Y						500	21,914	
Passamaquoddy, Me				2,312	6,000			
Pensacola, Fla				9	18	36	1,049	792
Philadelphia, Pa				333	2,415	191,442		
Plymouth, Mass	1,500	6,000						
Portland, Me	2,590	10,845		8,650	44,155	25,413	178	7
Providence, R. I	557	1,942		2	19			
Puget Sound, Wash						108	1,550	
Salem and Beverly, Mass	5,643	20,085	27	461	2,960	82		
Saluria, Tex							1,009	31,343
San Francisco, Cal	448	3,149		327	2,607	1,066,435		5
Savannah, Ga	1	8	2	51	211			
Vermont, Vt	2,667	17,609	51,589	118	621	9,255	6,169	
Willamette, Oreg				632	4,693	7,719	200	
Total	159,648	791,785	114,338	76,227	486,738	2,486,225	260,620	45,361
Additions to Niagara and Vermont, taken from Canadian reports		189,151					170,610	3,162
Grand total		980,936					431,230	48,523

The following table shows the amounts of domestic exports of fish by countries:

Countries.	Fish, dried or smoked.		Fish, fresh.	Fish, pickled.		Fish, other cured.	Oysters.
	Cwt.	Dollars.	Dollars.	Barrels.	Dollars.	Dollars.	Dollars.
Argentine Republic	.....	.....	.....	.....	.....	.....	812
Belgium	.....	.....	.....	6	60	779	12
Brazil	.....	.....	.....	50	541	309	1,841
Central American States	195	1,316	.....	121	857	5,039	240
Chili	.....	.....	.....	.....	.....	3,429	2,555
China	45	343	.....	.....	.....	2,572	.....
Denmark	.....	.....	.....	2,312	6,000	.....	.....
Danish West Indies	170	624	.....	395	2,302	2,489	402
France	.....	.....	.....	.....	.....	43,367	236
French West Indies and French Guiana	19,939	84,228	27	2,714	18,480	7,286	34
French Possessions in Africa and adjacent islands	.....	.....	.....	.....	.....	612	.....
French Possessions, all other	22	163	.....	270	2,197	13,653	50
Germany	86	330	.....	170	1,042	72,536	18,420
Great Britain: England	242	912	.....	746	4,151	1,587,457	118,634
Scotland	.....	.....	.....	1,030	4,700	5,514	2,667
Nova Scotia, New Brunswick, and Prince Edward Island	9,592	41,352	.....	2,046	12,137	50	5,693
Quebec, Ontario, Rupert's Land, and the Northwest Territory	2,992	18,900	53,660	219	1,628	21,787	56,516
British Columbia	87	696	.....	2	16	2,453	1,849
Newfoundland and Labrador	70	350	.....	.....	.....	220	68
British West Indies and British Honduras	5,084	27,769	86	5,540	33,066	25,289	1,491
British Guiana	940	4,886	222	1,478	9,289	1,090	809
Hong-Kong	104	689	.....	.....	.....	291,606	38
British Possessions in Africa	815	3,474	.....	81	866	341	183
British Possessions in Australasia	.....	.....	.....	626	4,652	207,463	33,143
Hawaiian Islands	90	644	.....	926	7,352	17,701	2,992
Hayti	62,387	372,025	.....	29,737	225,949	31,344	482
Italy	10	60	.....	.....	.....	.....	.....
Japan	55	406	.....	.....	.....	2,523	43
Liberia	371	1,238	.....	430	3,117	3,048	.....
Mexico	42	443	143	4	43	5,967	3,494
Netherlands	1	7	.....	6	56	.....	72
Dutch West Indies	24,994	77,818	.....	2,102	11,416	3,435	437
Peru	72	315	.....	.....	.....	14,315	.....
Portugal	.....	.....	.....	1	10	20	.....
Azore, Madeira, and Cape Verde Islands	611	3,295	.....	13	141	590	.....
Portuguese Possessions in Africa and adjacent islands	22	90	.....	.....	.....	66	.....
Russia, Asiatic	.....	.....	.....	.....	.....	27	.....
San Domingo	3,490	19,503	.....	2,112	16,534	6,757	14
Cuba	18,483	87,687	60,200	588	5,146	65,491	3,905
Porto Rico	5,729	24,077	.....	1,258	8,137	8,112	145
Spanish Possessions in Africa and adjacent islands	.....	.....	.....	.....	.....	384	.....
Sweden and Norway	196	760	.....	20,516	101,492	4,400	.....
United States of Colombia	1,997	12,142	.....	715	5,232	13,980	224
Uruguay	.....	.....	.....	.....	.....	1,117	2,157
Venezuela	710	5,160	.....	13	129	7,256	1,381
All other islands and ports, not elsewhere specified	5	33	.....	.....	.....	4,551	181
Total	159,648	791,785	114,138	76,227	486,738	2,486,225	260,620
Additions taken from Canadian reports	.....	189,151	.....	.....	.....	.....	170,610
Grand total	.....	980,936	.....	.....	.....	.....	431,230

One thousand nine hundred and three barrels of pickled herring, valued at $9,088, passed through Boston to Sweden and Norway as a foreign export.

Miscellaneous fish to the value of $32,120 goes as foreign export to England ($22,098), Nova Scotia and New Brunswick ($5,795), the French West Indies ($3,932), Quebec, Ontario, &c. ($215), and Australasia ($80). Of this amount Boston sends the most ($31,905) and Portland the remainder ($215).

The following table shows the foreign exports of fish:

Countries.	Fish, not of American fisheries.			
	Herring, pickled.		Sardines and anchovies, preserved in oil.	All other, not elsewhere specified.
	Barrels.	Dollars.	Dollars.	Dollars.
Central American States			1,296	48
China				805
France			1,811	2,033
French Possessions, all other			630	7
Germany				636
Great Britain: England				33,956
Nova Scotia, New Brunswick, and Prince Edward Island			193	666
Quebec, Ontario, Manitoba, Rupert's Land, &c			16,930	
British Columbia			288	529
British West Indies and Honduras			187	
British Possessions: Hong-Kong				470
British Possessions in Australasia				4,333
Hawaiian Islands				95
Mexico	2	22	2,366	181
Peru				473
San Domingo			521	
Cuba			25	91,489
United States of Colombia			56	133
Venezuela			477	
Total	2	22	24,780	135,854

FURS.

The value of the import of undressed fur-skins is shown in the next table:

Imports of fur-skins undressed.

Argentine Republic	$38,026
Belgium	2,082
China	77
France	2,696
French West Indies and French Guiana	204
Germany	82,044
England	359,351
Scotland	1,922
Nova Scotia, New Brunswick, &c	3,435
Quebec, Ontario, &c	789,591
British Columbia	162,558
Newfoundland and Labrador	72
British West Indies and British Honduras	270
British Possessions in Australasia	491
Japan	114,657
United States of Colombia	4,056
Uruguay	134
Total	1,561,666

The value of the imports of furs and dressed fur-skins is shown in the following table:

England	$1,085,376
France	781,769
Germany	378,643
Quebec, Ontario, &c	76,694
Belgium	60,781
Sweden and Norway	8,252
Scotland	5,538
Netherlands	3,319
United States of Colombia	375
Carried forward	2,400,747

Brought forward	$2,400,747
Nova Scotia, New Brunswick, &c	281
British Possessions in Australasia	239
Russia on the Baltic and White Seas	178
China	115
Spain	63
Newfoundland and Labrador	52
Austria	43
British West Indies and British Honduras	38
Hong-Kong	17
Cuba	14
Total	2,401,778

Furs are imported chiefly to New York ($2,142,947), Philadelphia ($93,713), Boston ($72,625), Montana and Idaho (from the Hudson's Bay Territory, of course). ($69,051), and San Francisco ($11,874).

The value of fur-skins and furs entered into consumption is shown in the following table:

Fur-skins of all kinds, not dressed in any manner	$1,544,893 89
Furs, and manufactures of:	
Dressed, on the skin	1,044,930 23
Dressed, partially on the skin	198 10
Dressed, not on the skin, hatters', and others	1,229,322 64
Hares', undressed, and not on the skin	8,178 00
Hats, caps, muffs, and tippets of fur, and all other manufactures of fur, or of which fur shall be the component of chief value	97,942 87
Total	3,925,467 73

Sheep and lamb skins tanned with the wool on are imported to the Lake ports to the amount of $22,232.

The domestic export of furs amounts to $3,836,579. The amount of this export, by customs-districts, and by countries, is shown in the following table:

Districts.	Furs and fur-skins. Dollars.	Countries.	Furs and fur-skins. Dollars.
Alaska, Alaska	20,900	Belgium	665
Baltimore, Md.	16,300	France	8,397
Boston and Charlestown, Mass.	138,468	Germany	1,099,380
Champlain, N. Y.	28,640	Great Britain: England	2,606,253
Detroit, Mich.	829	Scotland	2,260
Duluth, Minn.	16	Nova Scotia, New Brunswick, and Prince Edward Island	1,250
Huron, Mich.	600	Quebec, Ontario, Rupert's Land, and the Northwest Territory	32,044
New York, N. Y.	2,777,050	British Columbia	37,617
Niagara, N. Y.	210	British Possessions in Australasia	200
Oswegatchie, N. Y.	1,728	Japan	437
Philadelphia, Pa.	757,986	Netherlands	200
Puget Sound, Wash	16,707	Venezuela	219
San Francisco, Cal	29,337	Total	3,788,802
Vermont, Vt.	21	Additions taken from Canadian reports	47,777
Willamette, Oreg	10	Grand total	3,836,579
Total	3,788,802		
Additions to Niagara and Vermont, taken from Canadian reports	47,777		
Grand total	3,836,579		

Fur-skins, undressed, are sent as foreign exports to the amount of $118,089: to England $105,020, Germany $9,214, France $3,227, and

Hong-Kong $625. All passes through New York, except the Hong-Kong shipment, which goes through San Francisco.

There is also a foreign export of furs to the value of $52,199: to Quebec, &c., $37,518, England $8,025, Mexico $2,667, France $2,136, and Germany $1,296. It passes almost entirely through New York.

WOOL.

The importation of unmanufactured wool amounts to 42,171,192 pounds, valued at $7,156,944. The value of manufactures of wool (exclusive of hats) is $25,601,922. The details of this importation are given below:

Countries.	Unmanufactured.		Cloths and cassimeres.	Wool, sheep's, and hair of the alpaca, goat, and other like animals, and manufactures of.-									
				Woolen rags, shoddy, mungo, waste, and flocks.		Shawls.	Blankets.	Carpets.		Dress-goods.		Hosiery, shirts, and drawers.	Other manufactures of, not elsewhere specified.
	Pounds.	Dollars.	Dollars.	Pounds.	Dollars.	Dollars.	Dollars.	Sq. yards.	Dollars.	Sq. yards.	Dollars.	Dollars.	Dollars.
Argentine Republic	8,166,025	1,056,262											
Austria	246,835	48,536						63	104				877
Belgium	93,108	17,343	316,478	7,786	857	449	4	564	797	50	9		5,240
Brazil	969,520	118,209											323
Chili	2,600,643	294,586					16						
China							27						2,433
France	469,160	52,788	1,394,581	17,513	7,501	553,832	307	20,113	42,411	14,635,712	4,512,730	38,670	1,132,690
French Possessions in Africa, &c	514	54											
Germany	90,100	20,833	1,570,778	27,615	10,795	75,619	7	5,928	19,706	2,710,387	675,393	159,112	1,197,339
England	14,170,171	2,821,259	3,293,233	116,591	14,082	641,326	9,003	490,587	573,731	32,299,504	7,359,923	359,581	1,578,510
Scotland	100,425	11,939	5,898			23,766	8	11,928	29,171	16	5	2,525	15,059
Ireland			15										
Nova Scotia, New Brunswick, &c	64,040	12,970	153	390	28					85	39	6	1,112
Quebec, Ontario, &c	2,265,631	668,139	1,552	30	2	38	6	960	419	4,183	1,716	27	5,202
British Columbia	13,408	1,477	91				41						228
British West Indies and British Honduras	349	36	4				3			42	6		16
British East Indies	359,763	55,562	40			3,044		201	519				1,561
Hong-Kong	14,110	1,038				35							153
British Possessions in Africa, &c	3,063,557	485,710											
British Possessions in Australasia	2,936,892	711,845					27						405
Greece	657,648	68,340											
Hawaii	950	227											
Italy	50	5						18	91			11	283
Mexico	1,405,983	119,708	44			9	10	47	131	3	1	8	204
Netherlands			42,042			5		2,308	5,891				7,030
Dutch West Indies and Dutch Guiana	43,700	3,958											
Azore, Madeira, and Cape Verde Islands	4,720	587											16
Russia on the Baltic and White Seas													139
Russia on the Black Sea	1,503,703	199,253											
Spain							6						
Cuba	2,675	87								132	45		6
Sweden and Norway												1	1,889
Turkey in Europe	343	11						816	1,040				124
Turkey in Asia	106,780	11,879											290
Turkey in Africa													802
United States of Colombia	612,407	73,636											
Uruguay	2,185,884	298,765											
Venezuela	22,069	1,902											
Total	42,171,192	7,156,944	6,624,909	169,925	33,265	1,298,129	9,939	533,539	674,011	49,650,114	12,549,867	559,941	3,951,861

The imports of adhesive felt are valued at $28,273. This substance comes chiefly to New York and San Francisco. The import of roofing felt amounts to $5,299.

The exports of wool and woolen manufactures, by customs-districts and countries, is shown below:

Districts.	Wool, and manufactures of.				
	Wool, raw and fleece.		Carpets.		Other manufactures of.
	Pounds.	Dollars.	Yards.	Dollars.	Dollars.
Alaska, Alaska					85
Baltimore, Md					5
Boston and Charlestown, Mass	2,505	762			3,922
Brazos de Santiago, Tex					3,456
Cape Vincent, N. Y					365
Champlain, N. Y	6,500	1,900	14,570	9,875	82,327
Corpus Christi, Tex					2,625
Detroit, Mich	2,175	870	420	462	490
Duluth, Minn					455
Machias, Me			100	125	225
Miami, Ohio	58,219	18,293			
Newburyport, Mass					1,981
Oregon, Oreg	10,200	4,621	1,404	1,407	91,310
Portland, Me					25,982
Richmond, Va			4,345	3,475	6,982
Salem and Beverly, Mass			2,480	829	19,255
San Diego, Cal					6,293
Savannah, Ga					924
Superior, Mich			130	174	19,379
Waldoboro', Me			30	30	8,135
Willamette, Oreg					23
Wilmington, N. C					1,241
Total	79,599	26,446	23,479	16,377	275,460
Additions to Niagara and Vermont, taken from Canadian reports		670,008			161,106
Grand total		696,454			436,566

Countries.	Wool, and manufactures of.				
	Wool, raw and fleece.		Carpets.		Other manufactures of.
	Pounds.	Dollars.	Yards.	Dollars.	Dollars.
Argentine Republic					336
Brazil					1,063
Central American States					309
China					4,233
France					309
French West Indies and French Guiana					140
Miquelon, Langley, and St. Pierre Islands					950
French Possessions in Africa and adjacent islands					23
French Possessions, all other					1,297
Germany			50	75	24,510
Great Britain: England	10,200	4,621	4,345	3,475	51,214
Scotland					108
Nova Scotia, New Brunswick, and Prince Edward Island	2,505	762	2,480	829	45,959
Quebec, Ontario, Rupert's Land, and the Northwest Territory	66,894	21,063	15,120	10,492	93,978
British Columbia					13,897
Newfoundland and Labrador					64
British West Indies and British Honduras			395	495	2,297
British Guiana					1,297
Hong-Kong					3,233
Hawaiian Islands					4,432
Hayti			25	25	199

Countries.	Wool, and manufactures of.				
	Wool, raw and fleece.		Carpets.		Other manufactures of.
	Pounds.	Dollars.	Yards.	Dollars.	Dollars.
Italy					332
Japan			100	150	2,940
Liberia			138	121	
Mexico			55	60	14,469
Netherlands					170
Dutch West Indies					127
Portugal					275
Azore, Madeira, and Cape Verde Islands					1,244
Portuguese Possessions in Africa and adjacent islands					100
Cuba			10	21	2,225
United States of Colombia			85	96	1,153
Uruguay					1,040
Venezuela			676	538	1,404
All other islands and ports, not elsewhere specified					142
Total	79,599	26,446	23,479	16,377	275,460
Additions taken from Canadian reports		670,008			161,106
Grand total		696,454			436,566

The foreign export of woolen manufactures amounts to $373,753, that of unmanufactured wool to $472,519 (3,088,957 pounds), chiefly to Canada ($445,134), France ($23,835), and England ($3,550).

SILK.

The imports of raw silk are shown in the following table:

Silk, raw.	Pounds.	Dollars.
China	44,281	233,390
France	133,108	1,017,339
Germany	2,192	18,403
England	179,891	1,113,832
Italy	2,282	19,979
Japan	819,056	4,371,886
Hong-Kong	5,360	18,108
	1,186,170	6,792,937

Raw silk comes entirely to San Francisco (861,166 pounds), New York (324,328), and Philadelphia (676).

A foreign export of raw silk (38,515 pounds), valued at ($209,709), goes to England (37,018 pounds), France (1,000), and Quebec. It passes chiefly through New York.

The import of manufactures of silk is shown below:

Countries.	Silk, manufactures of.		
	Dress and piece goods.	Hosiery.	Other manufactures of.
	Dollars.	Dollars.	Dollars.
Austria	.....	.....	9
Belgium	9,000	10	44,217
Brazil	11	.....	.....
China	672	.....	80,249
France	10,608,762	3,060	2,098,170
Germany	4,169,604	39,861	1,178,266
England	1,667,826	35,559	1,567,508
Scotland	9,247	450	5,975
Ireland	.....	.....	312
Nova Scotia, New Brunswick, &c	77	.....	57
Quebec, Ontario, &c	610	.....	2,273
British Columbia	6	.....	160
British Guiana	.....	.....	237
British East Indies	82	.....	889
Hong-Kong	37	.....	4,518
British Possessions in Australasia	.....	.....	51
Hayti	.....	.....	60
Italy	329	.....	411
Japan	174	.....	8,925
Mexico	4	.....	69
Netherlands	284,235	.....	6,531
Russia on the Baltic and White Seas	.....	.....	544
Spain	.....	.....	127
Cuba	68	.....	278
Porto Rico	.....	.....	24
Sweden and Norway	.....	.....	64
Turkey in Africa	.....	.....	359
United States of Colombia	82	.....	10
Total	16,750,826	78,940	5,000,393

Almost the entire imports of this class come to New York.

The amount of silk and manufactures of silk entered into consumption is shown in the following table:

Description.	Amount.	Dollars.
Silk:		
Cocoons	.....	222,633 00
Raw, or as reeled from the cocoons	1,186,245 pounds.	6,793,710 00
Waste	.....	168,256 00
Worms' eggs	.....	1,012,624 00
Manufactures of all kinds	.....	16,239,655 79
Manufactures, such as velvet, of which silk is the component of chief value	.....	5,510,178 87

The import of silk waste amounts to $166,646. New York receives $84,414; San Francisco, $81,232.

The import of silk-worm eggs and cocoons amounts to $1,235,283. San Francisco receives $10,818,447; New York, $216,836.

The foreign export of silk manufactures amounts to $199,593.

IVORY.

The amount of ivory and manufactures of ivory entered into consumption is shown in the following table:

Ivory, manufactured	$339,863
Ivory, manufactures of, not otherwise provided for	34,067
Ivory or bone dice, draughts, chess-men, chess-balls, and bagatelle-balls	2,235
Total	376,166

The total import of ivory amounts to $379,402. New York receives $333,727, Boston $21,938, Baltimore $20,043, Philadelphia $2,749, San Francisco $965.

HORN.

The total value of the importation of horns, horn-tips, and horn-strips is $285,368, of which $240,487 comes to New York, $35,352 to Boston, $4,720 to the Lake ports, and $4,119 to Baltimore.

WHALEBONE.

Unmanufactured whalebone entered into consumption to the amount of 1,880 pounds, valued at $1,379. The consumption of manufactured whalebone is valued at $851.

SHELL.

Shells of every description, including, doubtless, both tortoise shell and shells of mollusks, entered into consumption, $162,768.76.

CORAL.

Unmanufactured coral entered into consumption to the amount of $718.14; coral cut or unmanufactured to the amount of $28,649.

LEATHER.

The following table shows the amounts and values of leather and leather articles entered into consumption:

Hides and skins:	
Goat-skins, Angora, and sheep-skins, with the wool on (less the value of the wool)	$7,419 15
Goat-skins, raw	3,181,072 40
All other hides, raw or uncured, whether dry, salted, or pickled; and skins, except sheep-skins, with the wool on	11,795,029 93
Leather, tanned, not manufactured	4,588,491 46
Manufactures of leather	3,449,979 76
Parchment	8,938 00
Preparations of viscera:	
Manufactures of bladders	106 00
Gold-beaters' molds and skins:	
Entered into consumption	14,236 00
Imported (this whole import comes to New York)	13,634 00
Sinews, nerves, &c., crude	3,798 00
Catgut and whipgut unmanufactured, catgut strings and gut-cord for musical instruments, also gut and wormgut for whip and other cords, entered into consumption	163,109 39

The total entry of catgut strings amounts to $146,210. Of this, New York receives $117,952, Baltimore $12,218, San Francisco $5,635, Boston $5,411, New Orleans $2,898, and Philadelphia $1,644.

Wool pelts, less the value of the wool, are imported to the value of $8,736. This import is entered entire at Boston.

HIDES AND SKINS.

The following shows the value of importations of hides and skins:

Argentine Republic	$2,071,161
Austria	26,846
Belgium	513,677
Brazil	1,138,819
Central American States	43,716
Chili	10,921
China	822
France	237,777
French West Indies and French Guiana	3,543
French Possessions in Africa	36,595
All other French Possessions	1,972
Germany	234,153
England	1,988,186
Nova Scotia, New Brunswick, &c	14,303
Quebec, Ontario, &c	493,530
British Columbia	23,288
Newfoundland and Labrador	2,327
British West Indies and Honduras	17,377
British Guiana	808
British East Indies	1,272,617
British Possessions in Africa	154,746
British Possessions in Australasia	627
All other	25,364
Hawaii	50,851
Hayti	7,219
Italy	679
Japan	121
Mexico	1,529,702
Netherlands	125,857
Dutch West Indies and Dutch Guiana	93,778
Portugal	23,467
Azores, Madeira, and Cape Verde Islands	48,122
San Domingo	19,977
Cuba	65,783
Porto Rico	13,826
Spanish Possessions elsewhere	14,679
Turkey in Africa	562
United States of Colombia	1,033,079
Uruguay	1,790,057
Venezuela	703,694
All unnumbered ports in Africa	123,853
	14,963,701

The next table shows the ports at which hides and skins are entered by the importers:

Districts.	Hides and skins, other than furs.	Districts.	Hides and skins, other than furs.
Baltimore, Md	$184,422	Niagara, N. Y	$92,891
Boston and Charlestown, Mass	3,498,294	Oswegatchie, N. Y	80,309
Brazos de Santiago, Tex	607,139	Oswego, N. Y	5,829
Buffalo Creek, N. Y	105,482	Pamlico, N. C	238
Cape Vincent, N. Y	22,623	Paso del Norte, Tex	9,261
Champlain, N. Y	7,129	Pearl River, Miss	471,104
Chicago, Ill	690	Plymouth, Mass	9
Corpus Christi, Tex	157,135	Providence, R. I	778
Detroit, Mich	49,919	Puget Sound, Wash	25,897
Fairfield, Conn	251	Richmond, Va	45
Galveston, Tex	7,359	San Francisco, Cal	26
Gloucester, Mass	80	Savannah, Ga	86,446
Huron, Mich	11,533	Superior, Mich	191
Minnesota, Minn	4,395	Vermont, Vt	68
New Bedford, Mass	20,065	Willamette, Oreg	111,979
Newburyport, Mass	7,337	Wilmington, N. C	1,025
New Haven, Conn	87		
New Orleans, La	66,879	Total	14,963,701
New York, N. Y	9,326,876		

The next table shows the importation of manufactured leather and articles made therefrom:

Countries.	Leather, and manufactures of.				
	Leather of all kinds.		Gloves of kid, and all other of skin or leather.		Other manufactures of.
	Pounds.	Dollars.	Doz. prs.	Dollars.	Dollars.
Austria	26	49	55	220	677
Belgium	5,374	7,007	6,377	41,024	432
Brazil	195	130	.....	.....	104
China	633	422	.....	.....	7,255
Danish West Indies	15	9	.....	.....	15
France	4,633,915	3,095,685	231,093	1,356,022	142,501
Germany	658,768	442,568	258,870	1,103,109	126,119
England	1,199,696	778,065	99,063	543,517	242,549
Scotland	382	255	47	319	722
Ireland	.....	.....	.....	.....	100
Nova Scotia, New Brunswick, &c	.....	.....	2	9	1,068
Quebec, Ontario, &c	583,873	82,854	12	105	10,948
British Columbia	.....	.....	.....	.....	755
British West Indies and British Honduras	.....	.....	.....	.....	5
British East Indies	354,143	176,193	.....	.....	759
British Possessions in Africa, &c	12	15	.....	.....	50
British Possessions in Australasia	480	567	.....	.....	177
Hawaii	.....	.....	.....	.....	7
Hayti	1,821	1,214	.....	.....	.....
Italy	1,963	1,348	310	1,333	119
Japan	.....	.....	.....	.....	496
Mexico	2,785	1,284	16	93	1,242
Netherlands	1,533	1,022	1	11	.....
Azore, Madeira, and Cape Verde Islands	.....	.....	.....	.....	5
Russia on the Baltic and White Seas	400	465	.....	.....	427
Spain	.....	.....	16	97	33
Cuba	424	283	.....	.....	112
Sweden and Norway	60	62	.....	.....	80
Turkey in Africa	.....	.....	.....	.....	2
United States of Colombia	805	162	.....	.....	204
Uruguay	115	12	.....	.....	.....
Venezuela	55	42	.....	.....	31
Total	7,447,423	4,589,713	595,862	3,128,919	537,014

The exports of leather are as follows:

	Quantity.	Value.
	.....	$2,480,427
Leather of all kinds, not elsewhere specified ..... pounds	25,122,936	6,016,573
Morocco and other fine leather	.....	1,280,225
Boots and shoes ..... pairs	300,484	414,630
Saddlery and harness and other manufactures	.....	456,073
Total	.....	10,647,728

The foreign exports of hides and skins amount to $44,415. This export is made from New York and Boston to France ($13,976), Nova Scotia and New Brunswick ($12,068), England ($10,668), and Germany ($7,515). That of leather amounts to $106,762 (382,765 pounds), chiefly to England and Canada; of leather gloves $13,372 (2,286 dozen pairs), chiefly to Canada and France; and other manufactures, $17,857, to British Columbia, Scotland, Mexico, England, Canada, and France.

The tables below show the amounts of exports by countries and by districts:

Countries.	Leather, and manufactures of.						
	Boots and shoes.		Leather of all kinds, not elsewhere specified.		Morocco, and other fine.	Saddlery and harness.	Manufactures of, not elsewhere specified.
	Pairs.	Dollars.	Pounds.	Dollars.	Dollars.	Dollars.	Dollars.
Argentine Republic	144	255	850	246	.....	388	1,419
Austria	.....	.....	192,523	40,525	.....	.....	.....
Belgium	.....	.....	1,839,757	560,390	26,813	50	1,113
Brazil	2,938	3,238	.....	.....	.....	394	6,432
Central American States	11,782	16,077	.....	.....	.....	10,136	566
Chili	.....	.....	.....	.....	.....	493	184
China	75	165	19,223	6,744	.....	112	201
Danish West Indies	8,961	9,338	7,926	1,766	45	1,133	3,056
France	.....	.....	64,909	18,140	1,375	1,990	1,455
French West Indies and French Guiana	.....	.....	.....	.....	.....	307	.....
Miquelon, Langley, and St. Pierre Islands	1,357	2,403	4,474	1,079	95	.....	.....
French Possessions in Africa and adjacent islands	192	204	.....	.....	.....	.....	.....
French Possessions, all other	4,103	6,723	1,976	463	.....	576	416
Germany	18,938	25,797	6,120,639	1,515,938	11,138	276	101,601
Great Britain: England	1,153	1,756	15,718,808	3,575,241	1,210,026	573	78,396
Scotland	1,104	4,910	184,751	45,312	3,240	12	39,301
Gibraltar	.....	.....	.....	.....	.....	.....	152
Nova Scotia, New Brunswick, and Prince Edward Island	41,091	48,723	43,402	11,140	5,342	4,009	8,279
Quebec, Ontario, Rupert's Land, and the Northwest Territory	18,074	33,890	91,331	26,356	175	6,911	20,620
British Columbia	17,896	31,294	12,132	3,253	.....	7,599	6,336
Newfoundland and Labrador	240	500	153,261	32,796	1,285	.....	2,501
British West Indies and British Honduras	56,093	66,633	28,399	7,740	2,139	3,316	5,302
British Guiana	370	462	32,416	8,992	1,125	105	692
Hong-Kong	78	179	8,630	2,152	.....	149	977
British Possessions in Africa	472	1,313	5,719	4,430	532	96	1,217
British Possessions in Australasia	398	702	15,973	4,360	7,953	17,685	8,019
Hawaiian Islands	21,188	32,341	9,176	2,428	.....	7,841	5,231
Hayti	12,165	13,670	250	127	688	1,097	453
Italy	.....	.....	3,310	1,100	.....	.....	.....
Japan	638	1,262	325,698	71,953	.....	2,962	7,588
Liberia	2,453	4,584	.....	.....	.....	.....	144
Mexico	38,793	53,383	4,077	1,675	102	4,446	8,010
Netherlands	2,198	2,662	194,291	64,330	2,767	.....	16,766
Dutch West Indies	4,473	4,799	16,668	4,253	20	873	1,824
Peru	546	948	.....	.....	.....	750	993
Portugal	.....	.....	.....	.....	.....	.....	1,007
Azore, Madeira, and Cape Verde Islands	2,231	3,064	2,518	572	498	.....	.....
Russia, Asiatic	1,327	2,642	3,100	800	.....	487	313
San Domingo	7,712	8,962	.....	.....	181	324	1,033
Cuba	3,958	4,785	3,867	1,279	2,075	3,348	19,056
Porto Rico	550	622	280	112	378	1,790	949
Spanish Possessions in Africa and adjacent islands	.....	.....	519	170	.....	.....	264
Sweden and Norway	.....	.....	9,421	2,687	.....	.....	.....
Turkey in Europe	.....	.....	.....	.....	.....	.....	5,268
Turkey in Asia	.....	.....	.....	.....	.....	.....	80
United States of Colombia	15,625	24,914	2,155	608	.....	9,227	2,519
Uruguay	.....	.....	.....	.....	771	.....	.....
Venezuela	424	532	407	123	1,462	4,630	2,255
All other islands and ports, not elsewhere specified	744	898	100	93	.....	.....	.....
Total	300,484	414,630	25,122,936	6,016,373	1,280,225	94,085	361,988
Additions taken from Canadian reports	.....	133,842	.....	.....	.....	.....	380,312
Grand total	.....	548,472	.....	.....	.....	.....	742,300

Districts.	Leather, and manufactures of.						
	Boots and shoes.		Leather of all kinds, not elsewhere specified.		Morocco, and other fine.	Saddlery and harness.	Manufactures of, not elsewhere specified.
	Pairs.	Dollars.	Pounds.	Dollars.	Dollars.	Dollars.	Dollars.
Alaska, Alaska			50	10			
Baltimore, Md	3,599	6,120	516,145	202,137	441	1,530	1,370
Bangor, Me	63	60					
Boston and Charlestown, Mass	25,585	33,433	3,312,403	666,173	1,119,981	5,040	26,821
Brazos de Santiago, Tex	25,823	32,218	125	27		1,233	153
Buffalo Creek, N. Y							2,319
Cape Vincent, N. Y	75	109					1,934
Champlain, N. Y	1,650	1,658	57,566	16,639		234	3,316
Corpus Christi, Tex	8,457	14,976	95	90		550	341
Cuyahoga, Ohio			70	21			215
Detroit, Mich	1,444	3,342				792	4,077
Duluth, Minn							29
Erie, Pa			60	16			
Genesee, N. Y	72	145	905	250		808	
Huron, Mich							662
Key West, Fla						65	
Machias, Me			50	8			44
Minnesota, Minn	3,286	4,708				4,739	
New Bedford, Mass			227	62			
New Haven, Conn							5,268
New London, Conn			280	112		375	56
New Orleans, La	4,288	4,068				170	232
New York, N. Y	129,857	167,856	19,020,309	4,499,578	159,506	44,305	274,390
Niagara, N. Y					175	60	140
Norfolk, Va							144
Oswegatchie, N. Y	3,755	3,013	5,065	1,535			4,628
Oswego, N. Y							32
Passamaquoddy, Me	26,828	30,021				2,418	5,192
Philadelphia, Pa	2,116	3,126	1,736,280	518,679	20	522	689
Portland, Me							895
Puget Sound, Wash	25	87				264	862
Saluria, Tex	3,119	4,279	30	15	102	140	24
San Francisco, Cal	49,515	80,915	445,571	103,103		30,248	24,851
Savannah, Ga	3,135	3,581	40	23			36
Vermont, Vt	7,792	20,915	27,665	7,895		368	3,268
Willamette, Oreg						314	
Total	300,484	414,630	25,122,936	6,016,373	1,280,225	94,685	361,988
Additions to Niagara and Vermont, taken from Canadian reports		133,842					380,312
Grand total		548,472					742,300

HAIR.

The amounts of hair and manufactures of hair entered into consumption are shown in the following table:

Hair, and manufactures of.	Pounds.	Value.
Hair, unmanufactured:		
Human hair, cleaned or drawn		$40,652
Human hair, not cleaned or drawn		41,627
Horse-hair, used for weaving, cleaned or uncleaned, drawn or undrawn	121,588	90,198
Horse-hair, all, and cattle-hair, cleaned or uncleaned, drawn or undrawn, unmanufactured	2,226,692	391,439
Cleaned hair, unmanufactured, not otherwise specified		54,501
Hogs' hair		15,057
Curled hair, other than hogs', for beds or mattresses		16
Hair, manufactured:		
Manufactures of human hair		14,825
Hair-cloth, and other manufactures not otherwise provided for		98,661
Hair bracelets, braids, chains, &c		1,484
Hair-pencils		3
Total		748,413

The imports of hair, by countries, are as shown below:

Countries.	Hair, and manufactures of.		Horse-hair for weaving.		Hair of all other kinds, not manufactured.	
	Hair, human, and manufactures of.	Hair, other, and manufactures of, not elsewhere specified.				
	Dollars.	Dollars.	Pounds.	Dollars.	Pounds.	Dollars.
Argentine Republic			596,741	104,240	144,220	26,380
Belgium	57	335			650	413
Brazil			161,715	33,405	420,969	71,943
China	832					
France	18,742	6,574	9,278	7,594	34,903	7,981
Germany	39,741	26,956	59,126	51,338	45,323	20,490
England	13,972	119,442	21,167	17,862	403,786	58,989
Scotland		8,610				
Ireland						
Nova Scotia, New Brunswick, &c			1,192	224	12,218	454
Quebec, Ontario, &c	2,179				10,387	802
Hong-Kong		601				
British Possessions in Australasia		37				
Italy	1,481					
Japan	71					
Mexico			3,926	576	178,143	28,741
Cuba					2,067	443
Porto Rico					138	52
Netherlands					6,110	598
United States of Colombia					95	20
Uruguay					235,315	49,112
Turkey in Africa		41				
Total	77,075	162,596	853,146	215,239	1,494,324	266,398

The imports are made chiefly to New York, Boston, and Philadelphia. Twenty-one thousand and three pounds of horse-hair for weaving, valued at $4,201, pass through Boston to England as a foreign export; also manufactures of human hair to the value of $19,329, chiefly to England, and other hair manufactures ($3,597) chiefly to Belgium.

BRISTLES.

The amount of bristles entered into consumption is placed at 353,287 pounds, valued at $545,011. The imports of bristles by countries is shown below:

Countries.	Bristles.	
	Pounds.	Dollars.
China	1,871	713
France	43,532	48,064
Germany	193,329	472,149
England	11,324	15,534
Total	450,056	536,460

Almost the entire import of bristles is entered at New York (449,910 pounds), a small quantity going to Boston (137) and New Orleans (9). There is a foreign export of bristles from New York to Canada amounting to 4,642 pounds ($3,236).

QUILLS.

The amount of quills entered into consumption, prepared and unprepared, is valued at $1,051. The value of toothpicks entered into consumption is $15,441.

FEATHERS.

The value of feathers entered into consumption is shown below:

Feathers and down for beds and feather-beds	$12,531 50
Ornamental feathers, ostrich, vulture, cock, &c., crude	634,450 20
Feathers, dressed, colored, or manufactured	15,352 00

The total entries of feathers amount to $11,313, of which New York receives $10,431, and San Francisco $727, with trifling entries at other ports. There are also feather-beds to the value of $1,404, coming chiefly to New York and Philadelphia.

GLUE AND GELATINE.

The import of hide-cuttings for glue-stock amounts in value to $320,722, of which New York receives $163,593, Boston $156,448, and Baltimore $681. Hoofs and other glue-stock of that description are valued at $10,650, of which $10,188 comes to the Lake ports.

The import of common glue amounts to 1,112,527 pounds, valued at $26,345.60.

The consumption of gelatine and similar products, of which a portion is probably of vegetable origin, is valued at $90,971.

Isinglass or fish-glue entered into consumption to the value of $32,236 (75,267 pounds).

The total import of fish sounds and glue is given at $16,125; $11,727 comes to Boston, and $4,398 to other ports.

Glue is exported to the amount of 81,685 pounds, valued at $16,069.

SPONGES.

The total import of sponges is valued at $91,742. New York receives $74,524, Philadelphia $2,452, and San Francisco $1,693.

OILS, FATS, AND SOAPS.

The following quantities entered into consumption:

Oils.	Amount.	Dollars.
Cod-liver oil, brown or crude, from provinces, not dutiable ..... gallons	129,263	81,607 00
dutiable ..... do	13,732	15,434 00
Total	142,995	97,041 00
Cod-liver oil, refined, medicinal	.....	17,290 60
Whale or fish oil from provinces, not dutiable ..... gallons	19,620	10,982 00
dutiable ..... do	26,711	11,237 00
Total	46,331	22,219 00
Neat's-foot, and all animal, not otherwise provided for ..... gallons	2,597.50	1,124 93
Seal ..... do	410	80 00
Tallow ..... pounds	25,522	1,938 00
Total	.....	2,142 03

Oils.		Amount.	Dollars.
Spermaceti and wax	pounds	16,371	6,302 00
Stearine	do	595	159 00
Tallow, and all other, and tapers	do	1,231	253 00
Glycerine	do	1,936,244	124,923 00
Grease*	do	3,140,974	117,074 22
Soap-grease	do	112,587	5,040 00
Common soap	do	3,791,688	219,089 64
Fancy soap	do	197,818	75,766 45

* The total import of grease amounts to $116,070; New York receives $58,340, Boston, $56,057.

Soap-grease is imported to the value of $5,384. Boston receives $2,384, New York $1,469, the Lake ports $894, and Philadelphia $637.

The total import of sperm oil is $5,590, all coming to San Francisco.

The next table shows the exports of oils and fats:

Oils, fats, &c.		Amounts.	Dollars.
Whale and other fish oil	gallons	1,026,038	442,165
Sperm oil	do	634,991	879,865
Spermaceti	pounds	153,552	41,027
Neat's-foot and other animal oils	gallons	19,932	19,720
Lard oil	do	349,429	281,551
Tallow	pounds	91,472,803	7,883,616
Soap	do	1,616,163	233,634
Tallow candles	do		638,952
Total			10,820,530

There is a foreign export of whale and other fish oils, apparently from the British Provinces through Boston to Belgium; this amounts to 43,103 gallons, valued at $26,669. A small foreign export of dutiable oils of this description goes to Quebec, Ontario, &c. (1,459 gallons), the British West Indies (236), and Brazil (10). This whole export amounts to 1,705 gallons, valued at $794. It passes through Boston (1,365 gallons) and New York (340).

The imports of whale and fish oil by countries and by districts are shown below:

Countries.	Whale oil and fish oil, not of American fisheries.	
	Gallons.	Dollars.
FREE.		
Nova Scotia, New Brunswick, &c	130,562	79,403
Quebec, Ontario, &c	2,142	1,339
Newfoundland and Labrador	6,004	3,346
Total	138,708	84,088
DUTIABLE.		
Danish West Indies	2,745	2,814
Germany	4,128	3,672
England	11,164	21,604
British Columbia	10,945	4,447
Newfoundland and Labrador	450	161
British West Indies and British Honduras	2,554	837
Hawaii	2,669	1,070
Netherlands	4,767	5,377
Asiatic Russia	12,400	3,941
Sweden and Norway	120	92
Total	51,882	44,015

Districts.	FREE.		DUTIABLE.	
	Whale and fish, not of American fisheries.		Whale and fish, not of American fisheries.	
	Gallons.	Dollars.	Gallons.	Dollars.
Boston and Charlestown, Mass	82,007	45,782	2,570	771
Champlain, N. Y	72	97		
Gloucester, Mass	1,360	593		
Huron, Mich	2,070	1,242		
New York, N. Y	40,680	31,870	23,238	33,694
Passamaquoddy, Me	10,160	3,480		
Philadelphia, Pa			120	92
Portland and Falmouth, Me	2,090	895		
Puget Sound, Wash			4,535	1,851
Salem and Beverly, Mass	269	129		
San Francisco, Cal			18,821	6,483
Willamette, Oreg			2,598	1,124
Total	138,708	84,088	51,882	44,015

PERFUMERY MATERIALS.

The next table shows the quantity entered into consumption of materials used by perfumers:

Description.	Ounces.	Dollars.
Castor or castoreum		3,482
Civet		1,218
Civet and musk in natural pod	5,991	33,336
Ambergris		694
Total		38,710

COLORING MATERIALS.

The next table shows the quantity entered into consumption of substances used by color-makers:

Description.	Pounds.	Dollars.
Cochineal	1,304,370	648,621
Lac, crude, seed, button, and stick	47,063	9,592
Lac-dye	454,781	26,243
Total		674,456

The total import of cochineal is 1,324,165 pounds, valued at $649,325.

The next table shows the quantity of cochineal imported, by countries:

Imports of cochineal.

Countries.	Pounds.	Dollars.
Belgium	19,881	9,867
Central American States	13,115	5,296
France	11,316	7,065
England	342,109	180,035
British West Indies and British Honduras	11,219	6,500
Australasia, British Possessions	972	467
Mexico	111,763	52,466
Spanish Possessions in Africa	314,290	174,394
United States of Colombia	499,500	213,235
Total	1,324,165	649,325

The next table shows the quantity of imports by customs districts:

Districts.	Pounds.	Dollars.
New York	919,870	431,063
New Haven	284,133	157,345
Boston	60,157	31,303
Philadelphia	45,918	23,851
San Francisco	14,087	5,763
Total	1,324,165	649,325

In addition to the above, we find that 66,986 pounds, valued at $52,938, pass through New York to England (foreign exports).

WAX.

The next table shows the quantity entered into consumption of wax and manufactures thereof.

Description.	Amount.	Dollars.
Wax, and manufactures of:		
Bees-wax ..... pounds	19,687	3,198
Sealing-wax		3,088
Manufactures of, not otherwise provided for		6,356
Total		12,553

The total import of wax amounts to $16,844, of which New York receives $11,764 and Philadelphia $3,330.

The total export of wax amounts to 276,891 pounds, valued at $22,876.

The total export of bone-black, ivory-black, and lamp-black (the latter not of animal origin), amounts to 515,488 pounds, valued at $22,876.

CHEMICAL PREPARATIONS, MEDICINES, ETC.

The following table shows amounts entered into consumption:

Articles.	Pounds.	Dollars.
Phosphorus	56,474	11,295
Ammonia (crude)	1,341	131
Sugar of milk		14,653
Albumen and lactarine		57,965
Animal carbon		396
Cuttle-fish bone	54,215	9,482
Cantharides	14,206	11,843
Rennets, raw and prepared		12,016
Total value		117,801

The total import of rennets is valued at $11,944, of which New York receives $11,470 and San Francisco $398.

BONES.

The value of the import entries of "bones, crude, and not manufactured, burned, calcined, ground, or steamed, and bone-dust and bone-ash for

the manufacture of fertilizers," is placed at $82,882. The amount entered into consumption is $56,935.

The principal import is through the Lake ports, which enter to the value of $52,469. Baltimore, the seat of many extensive fertilizer factories, receives to the value of $23,857, New York $4,937, and Boston $1,475.

The total export of bones and bone-dust amounts to 7,072,000 pounds, valued at $121,493.

GUANO AND OTHER FERTILIZERS.

The import entry of guano, except from bonded islands, is placed at 25,482 tons, valued at $873,790.

The export of guano amounts to 954 tons, valued at $41,530. 2,757 tons, valued at $77,190, goes as a foreign export to Ireland (1,537 tons), England (680), and Cuba (535). It passes through Petersburg, Va. (1,437 tons), Beaufort, S. C. (779), and New York (541).

Other fertilizers are imported to the value of $157,471. Of this amount Baltimore receives $48,230, New York $18,897, Philadelphia $9,613, and other ports $80,647.

Manures, probably mostly animal, are exported, to the value of $1,076,602.

SPECIMENS OF NATURAL HISTORY.

The following entered into consumption:

Specimens of natural history, botany, and mineralogy for cabinets, &c., and not for sale	$12,191
Skeletons and other preparations of anatomy	4,040
Bird-skins	11
Stuffed birds	1,097
Fossils	375
Total	17,714

The following table shows the countries from which guano is imported:

Countries.	Guano (except from bonded islands).		Countries.	Guano (except from bonded islands).	
	Tons.	Dollars.		Tons.	Dollars.
Chili	1,832	55,139	Mexico	18,481	741,124
France	16	790	Venezuela	4,463	65,276
Scotland	4	317	All other countries and ports in South America	1	12
British West Indies and British Honduras	615	7,123	Total	25,582	873,390
Hayti	100	3,178			
Peru	70	143			

Guano is brought chiefly to New York (16,738 tons), Baltimore (7,732), Philadelphia (673), Norfolk (300), San Francisco (122), and New Orleans (16).

The two following tables show the aggregate imports and exports for the years 1875, 1876, and 1877.

Net imports.

Articles.	1875.	1876.	1877.
Living animals	$2,062,542	$1,715,264	$1,625,495
Fish	2,802,395	2,520,238	2,253,620
Hides, skins, furs undressed, hair, &c	20,541,768	15,185,194	16,840,299
Furs	2,987,865	2,881,329	2,348,380
Wool, unmanufactured	10,379,438	7,929,139	6,684,425
manufactures of	44,216,371	32,607,152	25,328,169
Silk, raw	4,471,396	5,405,608	6,583,228
manufactures of	24,107,665	23,487,418	21,630,566
Leather and manufactures of	10,166,909	8,208,150	8,117,655
Hair manufactures	879,419	348,621	216,745
Oils, animal and vegetable	1,906,949	1,508,387	1,699,829
Guano	525,667	704,818	796,200
Provisions not included			
	$125,048,384	$102,500,718	$94,124,611

Net exports.

Articles.	1875.	1876.	1877.
Living animals	$2,672,505	$2,436,287	$3,325,203
Provisions:			
Meats	39,217,176	49,592,834	67,288,758
Butter and cheese	15,166,599	13,379,579	17,125,243
Eggs and condensed milk	132,308	126,849	132,230
Fish	3,165,065	3,715,184	4,139,706
Hides, skins, furs, and hair	9,555,747	7,615,565	6,607,716
Wool, unmanufactured	62,754	13,845	26,446
manufactures of (not including hats and caps)	154,401	336,389	291,837
Leather and manufactures of (including trunks)	7,438,192	10,142,576	8,208,383
Oils and fats:			
Animal oils, including whale oil	1,420,324	1,975,972	1,623,301
Lard	22,900,522	22,429,485	25,562,665
Tallow	5,692,203	6,734,378	7,883,616
Soap (and starch)	1,136,173	1,209,695	1,093,234
Manures	616,376	922,221	1,118,132
Total	$109,330,345	$120,630,859	$144,516,470
Annual average for three years			

INDEX OF OBJECTS.

A.

	Page.
Abalones	184
Abeona Trowbridgii	38
Aboriginal bird-spears	83
drying-houses	169
fish-spears	83
Absorbent, Infusorial earth for	208
Acanthophora muscoides	266
" Thierii	266
Acanthurus chirurgus	38
" nigricans	38
Accessories, hatching	246–248
of bows and arrows	89
of obtaining and impregnating ova	245
to artificial baits	138
to hunting-birds	137
to hunting-dogs	136
Acetabularia crenulata	271
Achirus lineatus	26
Acid, Carbazotic	229
Carbolic	177
Formic	229
Osmic	177
Picric	177
Acipenser brevirostris	64
" maculosus	65
" rubicundus	64
" sturio	64
Acipenseridæ	64
Adhesive eggs apparatus	246
preparations	135
Ælurichthys marinus	62
Aerating-pipe	247
African leech (Hirudo trochina)	231
Agaphelinæ	12
Agaphelus gibbosus	12
Agarum Turneri	270
Agassiz collecting-tank	176
Agonidæ	33
Ahnfeltia gigartinoides	268
" plicata	268
Aids, Personal	142
Air force-pumps	247
Air-gun canes	90
Air-guns	89
Piston	90
Reservoir	90
Alaria esculenta	269
Alaska Sable	190
Albicore	40
Albula vulpes	59
Albulidæ	59

	Page.
Albumen, &c., Imports of	299
of blood	229
of eggs	230
Preparation of	175
preparations, Manufacture of	175
Album græcum of dogs	229
Alces malchis	7
Alcohol	176
Alcoholic specimens	176
Alewife	60
Alewives, Smoked	183
Algæ	265
for "artificial staghorn"	265
for fertilizers	265
as food	265
for manufacture of bromine	265
for manufacture of iodine	265
Ornamental	265
Alligator	21
mississippiensis	21
leather	215–216
Musk of	228
Teeth of	199
Turtle	22
Alligator-oil	226
Alopecidæ	68
Alopias vulpes	68
Alosa sapidissima	60
Alpenstocks	142
Alcidium Blodgettii	266
Alum, &c	178
Alutera cuspicauda	25
Amber-fish	43
Ambergris, Imports of	298
of sperm-whale	228
Ambloplites rupestris	48
Ambreine	228
American Badger	4, 190
Beaver	17
Buffalo	7
Club-fish	186
Elk	8
Leech	231
Miller's Thumb	34
Sable	189
Otter	4
Sardines	186
Sole	26
Amia calva	63
Amiidæ	63
Amiurus catus	62
Amansia multifida	265
Ammodytes americanus	31

	Page.
Ammodytidæ	31
Ammonia	230, 299
Carbonate of	202
Purpurate of	228
Manufacture of	175
Ammunition (its preparation)	91
Prepared	92
holders	94
measures	92
Amphibians, Propagation of	245
Amphiroa Californica	267
" fragillissima	267
" nebilis	267
" nodulosa	267
Amphistichus argenteus	38
" similis	38
Anacanthini	28
Anadyomene flabellata	271
Anarnacinæ	12
Anarnacus semijunctus	12
Anarrhichadidæ	32
Anarrhichas lupus	32
" vomerinus	32
Anatomical instruments, Bristles for	219
jars	176
Anchored gill-nets	123
Anchors	153
Anchovies, Essence of	186
Preserved exports of	283
Preserved imports of	279
Salted	186
Anchovy	61
sauce	186
Ancylopsetta quadrocellata	28
Angel-fish	39
Angel-fish, Black	39
Angler	23
Angling-apparatus, Accessory	118
Parts and accessories of	97
Angling-tackle	95
Anguilla rostrata	63
Anguillidæ	63
Animal charcoal	230
equipments	142
fertilizers, Other	232
for scientific uses, Preservation of	176–178
products and their applications	179–187, 273
scalps	217
calls, whistles, &c	138
Animals and birds, Imitations of	139–140
Bladders of	215
breeding, Foreign imports of	274
Cages for	243
decoy, Living	139
domesticated, Culture of	244
Dung of, used in calico-printing	228
Food for	187
Gall of, for dyeing	228
Hunting	136
Predatory, not elsewhere exhibited	244
useful, Enemies of	244
Anisotremus virginicus	47
Annelida	262
Annulosa	262
Antarctic Fur-seal	191
Antelope (Arctilocapra americana)	192
Hair of (on skin)	218
heads, Masks for	141
Hoofs of	202
Proghorn	7
Antennariidæ	23
Antilocapra americana	7
Antilocapridæ	7
Antilopinæ	7
Antlers	202
of deer	202
of elk	202
of moose	202
Aparejos	142
Apeltes quadracus	54
Apodes	63
Apparatus accessory to rigging fishing-vessels	150–162
Adhesive eggs	246
Angling (accessory)	118
Angling, Parts and accessories of	97
Cooking	162
Cord-twisting	89
Deep-sea-sounding	80
Dipping	248
Flint-chipping	89
for collecting specimens	233
for destroying injurious species	243
for drawing out	136
for ice-cutting	168
for kindling fire	162
for making and preserving alcoholic specimens	176
for making and mounting skins	178
for making carts	177
for manufacture of nets (accessory)	130–131
for physical research	233
for preserving and making skeletons	177
for smoking out	136
for suffocating with fumes of sulphur	136
for transporting eggs	247
for transporting fish	247
for twisting lines	116
for wholesale destruction	136
Hatching	245–247
of leather-dressing, recent and aboriginal	172
Photographic (accessory)	178
Scaling	169
Smoke-drying	169
Sun-drying	168
Transporting	247
Appliances for working up results	233
of pursuit	142
Applications of animal products	179–187
Aquaria	244
Aquarium-car (Stone's)	247
Aquatic animals, Fish-cars for	244
Floating cages for	244
Arabian manna	230
Arara, Red-mouth	47
Archosargus probatocephalus	46

Page.

Arctic Fox 189
Arctomys caligatus 16
" flaviventer 16
" monax 16
Argentina syrtensium 56
Argentine, Western 56
Argyreiosus vomer 41
Argyrosomus Artedi 57
Armadillo 20
Armed clubs 71
leads 80
Armor, Defensive 165
Arms, Breech-loading 90
Fire 90
Muzzle-loading 90
Army collecting-tank 176
Arrow-head pouches 89
sharpeners 89
Arrows 88, 89
Arrow-shafts, Feathered 220
Arrows, Harpoon (used in fishing) 89
Hunting 88, 89
Arsenic 136, 178
Arsenical soap 178
Articulating-tools 177
Artificial baits 138
(accessories to) 138
flies 138
for bass 102–114
for salmon 102–114
Feathers used for 220
Hair and bristles for (see under B 45) 219
on hooks 102
Raw material for making 138
Tools for making 138
guanos 232
ice, Methods of manufacturing 168
lights 167
staghorn, Algæ used for 265
Art of plumagery 172
Arts and manufactures, Materials employed in 197–232
medicines, Chemical products and agents used in 229–231
Ascothamnion intricatum 271
Asperococcus echinatus 270
" sinuosus 270
Asphyxiators 136
Aspidonectes ferox 22
" spinifer 22
Aspidophoroides monopterygius 33
Ass leather 209
Astacus, Concretions from stomach of 207
Astroscopus anoplus 32
Atherinidæ 53
Atwood's Shark 67
Audubon's Hare 19
Auk leather 215
Aulostoma maculatum 54
Aulostomidæ 54
Aurilaves 223
Awls, Probing 79
Axes 76
Azuring 172

Page.

B.

Babiche (see under D 20).
Bacon and hams, imports and exports 276–277
Bachman's Hare 19
Badger, American 4
Hair of 217
Bags, Game 166
Inflatable 176
Bailing 174
Baird collecting-seines 127
Bairdiella punctata 45
Baird's Hare 19
Porpoise 10
Bait, Sea-snails used for 251
seines 127
boxes 138
Bivalve shell-fish for 253
cans 138
cast-nets 130
clams, Wheelbarrows for 138
cutters 138
Baited hooks 95
hoop-net 129
Bait-ladles 79, 138
Bait-mills 138
Bait-mill knives 77
Bait-mills, knives, choppers, &c 170
Bait-needles 138
Baits 137, 187
Artificial 138
Methods of preparing (accessories) 138
Natural 137–138
Preparation of 170
Prepared (see B. 45) 187
Salted 137
Tolling 137
Spoon, plain and fluted 101–102
Balæna mysticetus 13
Balænidæ 13
Balænoptera Davidsonii 13
" rostrata 13
" velifera 13
Balænopteridæ 12
Balænopterinæ 12
Baleen 203
Balistes capriscus 25
" ringens 24
" vetula 24
Balistidæ 24
Ball, shot, and wire cartridges 92
(Ballistas) 88
Banded Rock-fish 35
Rudder-fish 43
Seal 6, 192
Bangia fuscopurpurea 269
Bank-note ink 200
Banta refrigerator, Horizontal 168
Barbed implements 82
spears 82
Bark lines 116
Barnacles 244
Barracuda, Northern 52
Southern 53
Barreling 174
Barrel-lifters 161

	Page.
Barrel-pots for eels	133
Barrels	169, 247
Barrel-traps	131
Barren Ground Caribou	8, 193
Barrier-nets	122
Barrier-snares	134
Barriers, Bay or cove (Rasch's)	246
Bar-weirs	134
Basket-hatching	246
Baskets, Game and fish	167
Salmon (Columbia River)	131
Bass, Artificial flies for	102–114
Grass	48
Red	45
Rock	48
Sea	50
Spotted	45
Striped	51
White	51
fishing, multiplying reels for	118–119
tackle	96
traps	133
Bastard Snapper	46
Bat guano	231
Batrachidæ	32
Batrachus tau	32
Bat, Sea	23
Bats, Hair of	195
Bay or cove barriers (Rasch's)	246
Lynx (Lynx rufus)	188
Porpoise	11
Beach-dryers	168
Beak, Half	55
Beam-trawl	129
Bear, Black	5, 191
Bones of, &c	199
Claws of	203
Grizzly	4
Hair of	217
Polar	5
White	5
Bearded Flying-fish	55
Bear-fat	223
meat, Jerked	182
oil	223
Bears, Teeth of	197
Beaver, American	17, 194
Castoreum of	227
Fur of (castor)	196
Incisors of	198
leather	214
Bed-bug dye	229
Beds	162
Nets for	165
Beef, Imports and exports of	276–277
Dried, smoked, and salted	182–184
Bees, Propagation of	248
Beeswax	230, 299
Beetles, &c., Vesicatory preparations from	231
Wings of	208
Belaying-pins	151
Bellows	248
Belone hians	54
" Jonesii	54
Belone latimanus	54
" longirostris	54
Belonidæ	54
Belts	95, 166
Cross	166
Pistol	95
Beluga leather	214
Bermuda Bonito	42
Shad	46
Berycidæ	44
Bidarkas	144
Bidarras	144
Big-eye, Short	52
Big-eyed Herring	59
Scad	41
Bighorn	7
Billiard-table cushions, Manufacture of	173
Birch-bark canoes	142–143
Birch canoes	142
Bird furs	195
gelatine	221
gelatines	187
guano	231
mesh-nets	122
oils	225–226
Extraction of	175
preparations	183–185
Bird-calls	138
Bird-fyke	133
Bird-lime, &c	135–252
Birds, Bone of	200
Cages for	243
Chemical products from	230
Coloring from	228
domesticated	244
Down of	220
Foreign imports of	274
Jerked	183
Propagation of	244
Quills of	219
Bird-hunting	137
Bird-skins, Leather prepared from	215–300
Bird-slings (used by Eskimos)	86
Bird-snares	86
Bird-spears, Aboriginal	83
Bison americanus	7, 192
Hoofs of	202
leather	209
Bits	142
Bivalves, Other, for food	256–257
Bivalve shellfish	253
for bait	253
for food	253
Bivalves, Injurious	258–259
Prepared foods of	259
Pearl-producing	257
Useful or ornamental, other than for food	257
useful, Otherwise	258
Black Angel-fish	39
Bear	5, 191
Cat	188
Doctor-fish	38
Dog-fish	69

	Page.
Black Grouper	50
Rat	17
Rudder-fish	43
Sucker	61
Bass, Large-mouth	49
Small-mouthed	49
Black-bass tackle	95
Black-eared Rockfish	35
Black-fish	11, 36
oil	224–225
Black-headed Rockfish	35
Black-tailed Deer (Cariacus columbianus)	193
Black-winged Flying-fish	55
Bladders of animals	215
Blanket decoy (for antelopes)	141
Blankets, Imports of	286
(rubber and mackinaw)	162
Bleaching	172–173
preparation	177
Blepharichthys crinitus	42
Blocks	150
Blodgettia	271
Blood, Albumen of	229
Hæmatin	228
poisons	136
Blow-guns (arrows)	89
(balls)	89
(by the breath)	89
Blubber-fork	174
Blubber-forks	81
Blubber-hooks	81
Blubber-knives	73
Blubber-mincing spades	77
Blubber-pikes	81
Blue Hake	30
Parrot-fish	36
Shark	68
Blue-cheeked Red-mouth	47
Blue-fish	36, 51
Salted	185
seines	127
tackle	96
Blue-headed Shark	68
Blue-nose Bream	48
Blue-striped Red-mouth	47
Boarding-knives	73, 174
Boat-builders' materials	154
Boat-hooks	80, 151
Boats	142–150
Covers for	141
Ducking	148
Boat-seine, Pump-box and haft for	146, 161
Boats, Fishing	142
fishing, Cat-rigged	148
Hunting	142
Italian fishing	147
of Great Lakes	149
Portable	145
Sea	147–148
Skin	146
Whale	146
Bobs	97, 138
Eel	97
Body-oil, Preparation of	174
Boiling cocoons	171
Boiling-vats	177
Bolt, Pump	160
Bomb-lance	92
Bone	197–201
and ivory waste	200–201
of birds	200
Cuttle-fish	187, 207
of fishes	200
Gelatine from	187
of mammals	199–200
points, Clubs with	71
knives	75–76
Bone-black	200, 228, 299
charcoal for filters	200
Bones of buffalo	199
Exports of	300
and ivory shavings, Gelatines from	221
Imports of	299–300
of sword-fish	200
Fish	200
Bonito	40
Bermuda	42
Long-finned	40
Oceanic	40
Booms, revolving	117
Boots and shoes	165, 292–293
Bostrychia calamistrata	266
" Montagnoi	266
" Moritziana	266
Bottle-head Whale	12
Bottom-set lines	91
Bovidæ	7
Bovinæ	7
Bowhead Whale	13
Bowing	170
Bowl-traps	134
Bow-mouthed Gar-fish	54
Bows and arrows	88
Cross	88
Simple	88
Boxes	95
Bait	138
Glass-grilled (Coste's)	246
Hatching (floating)	246
Ice	168
Box fish-ways	242
Box-hook	161
Box, Live (Atkins's)	247
Box traps	133
Brackett's patent fish-ways	242
troughs	255
Brains of buffalo used in tanning	225
Branchiostoma lubricum	70
Branchiostomidæ	70
Brazilian diamond-beetles	208
Bream	46
Blue-nose	48
Charleston	46
Breastplates	165
Breech-loading arms	90–91
Breech-sights	93
Brevoortia patronus	60
" tyrannus	59
Bridges, Portable	142
Brill	28

	Page.
Brillantine, Preparation of	170
Bristles, Consumption and imports of	265
for anatomical instruments	219
of hog and peccary	218
for shoemakers' wax-ends	219
Broad-fingered Sea robin	33
Bromine, Algæ in manufacture of	265
Brook Pickerel	55
Brook-shanty (Furman's)	246
Brook Trout	58
Brosmius americanus	30
Brown Chimæra	65
Pelican	195
Rat	17
Brushes, Deer-hair	218
Feathering	247
from hair of skunk	217
Hair and bristles for	217
Bryopsis hypnoides	270
" plumosa	270
Bryothamnion Seaforthii	266
" triangulare	266
Bubalichthys bubalus	61
Buccinum, Shells of	206
Buffalo, American	7, 192
Bones of	199
Brains of, used in tanning	225
Horn of	201
Sinews of	215
fish	61
hair	196
leather	209
meat, Salted	184
Bulk-wadding	92
Bull-dog sounding-machine	86
Bullet-holders	94-95
Bullet-molds	92
Bullets	92
shells, &c. (explosive)	92
Bull-tows	97
Bung-buckets	161
Bunts, Lance	127
Burbot	30
Bur-fish	23
Burning of lime	176
Burning shells, Models of kilns for	176
Burnt horn	202
sponge	231
Busycon, Shells of	206
Butter, Exports and imports of	276-277
fish	43
from milk of cows	225
Butterfly, Flying-fish	54
Ray	66
Byssus of mollusks	222
of mollusks, Fabrics from	196
of wing-shell (Pinna nobilis)	196

C.

Cabree	7
Cabrestos	142
Cages	243
for animals	243
for birds	243
for insects	243-244
Calcined coral	207
shells	207, 231
California Gopher	17
Gray Squirrel	14
Ground Squirrel	15
Hare	19
Spotted Sole	28
Sting Ray	65
Calliblepharis ciliata	267
Callirhinus ursinus	5
Callithamnion Americanum	269
" Baileyi	269
" Borreri	269
" byssoideum	269
" corymbosum	269
" cruciatum	269
" floccosum	269
" heteromorphum	269
" Lejolisia	269
" plumula	269
" ptilophora	269
" Pylaisæi	269
" roseum	269
" Rothii	269
" tetragonum	269
" Turneri	269
" versicolor	269
Callophyllis discigera	268
" obtusifolia	268
" variegata	268
Calothrix confervicola	271
" scopulorum	271
Calls, Animal, whistles, &c	138
Bird	138
Camel's hair	195
Cameo, Sea-snails for	252
shell	206
Camera-obscuras	178
Cameras and fittings	178
Camera tripods and stands	178
Camp outfit	162
Camp, Hunting	162
Canada Lynx	188
Pike-perch	49
Canadian cochineal	229
fish	279
Candle-fish	56
Candles, tallow, Exports of	297
Candlestick	160
Canes, Air-gun	90
Can-hooks	81
Canisters	94
Canned chicken	188
clams	187
food	184
frogs	185
goose	185
herring	186
lobster and crabs	261
Little Neck clams	187
meats	163, 164, 185
menhaden	186
milk	184
scollops	187
turkey	185

	Page.
Canned turtle	185
Canning factory, Model of lobster	169
Model of oyster	169
meats	169, 170
Preservation by	169, 170
salmon, establishment, Model of	169
Canoes	145, 146
Birch	142
Birch-bark	142, 143
Dug-out	144
Oyster	148
Wooden	143
Cans	247
Clark's	247
Green's	247
Plain	247
Slack's	247
Bait	138
Cantharides, Imports of	299
Canthorhinus occidentalis	25
"Cape Cod" fish-ways	241
Capelin	56
Capelin-seines	127
Cap-holders	95
Cappers	92, 93
Caps	91, 165
Cap straps	95
Carangidæ	41
Carangus chrysos	42
" hippos	42
Car-aquarium (Stone's)	247
Carassius auratus	62
Carbazotates, Manufacture of	175
Carbazotic acid	229
Carbolic acid	177
Carbonate of ammonia (hartshorn) (see under 30)	200, 202
Carbon, animal, Imports of	299
Carcharodon Atwoodi	67
Carding	170
Cariacus columbianus	9
" macrotis	9
" virginianus	8–9
Caribou, Barren Ground	8, 193
leather	210
Woodland	8
Woodland	193
Carp	61
Gall of	228
Carpets, Imports of	286
Carpiodes cyprinus	61
Cars, Refrigerator	168
Carton-pierre	177
Cartridge-holders	95
Cartridges, Ball, shot, and wire	92
Methods of preparing	92–93
Carts, Dog	137, 142
Carts, Fish (used in Nantucket)	142
Carving, Ivory	173
Carving-tools	168
Case of cups (Clark's)	247
(Wilmot's)	247
Case of trays (Clark's)	247
Cases	95, 245
Castagnea virescens	270
Cast-net	130
Castor canadensis	17
Castoreum of beaver	227, 298
Castoridæ	17
Castorine	227
Casts, Apparatus for making	177
Casts of fishes	241
Cat (Felis domestica)	188
Black	188
Maltese	188
Tortoise-shell	188
White	188
Catalogue of illustrations of invertebrates of American coasts	251
Cat-fish, Fork-tailed	62
Mud	62
"Cat-gut" snoods and leaders	116
Catostomidæ	61
Catostomus teres	61
Cat-rigged fishing-boats	148
Cattle, Foreign imports of	274
Cattle, Hair of	219
Caulerpa Ashmeadii	270
" clavifera	270
" crassifolia	270
" cupressoides	270
" ericifolia	270
" lanuginosa	270
" paspaloides	270
" plumaris	270
" prolifera	270
Caulolatilus microps	44
Caviare	186
Cedar manna (Pinus cedrus)	230
Centrarchidæ	48
Centroceras clavulatum	268
" Eatonianum	268
Centropristis atrarius	50
Centroscyllium Fabricii	69
Centroscymnus cœlolepis	69
Ceramium Deslongchampsii	268
" diaphanum	268
" fastigiatum	269
" nitens	268
" rubrum	268
" strictum	268
" tenuissimum	268
" Youngii	268
Ceratacanthus aurantiacus	25
Cero	41
Spotted	41
Cervidæ	7
Cervus canadensis	8
" dama	9
Cete	10
Chænopsetta dentata	27
" oblonga	27
" ocellaris	27
Chætodontidæ	38
Chætomorpha brachygona	271
" melagonium	271
" Picquotiana	271
" sutoria	271

	Page.
Chætomorpha tortuosa	271
Chamædoris annulata	271
Champia parvula	267
Channel Cat-fish	62
Chantransia efflorescens	269
" virgatula	269
Charcoal, Animal	230
Charge-drawers	93
Charleston Bream	46
Checks, Recoil	94
Cheek-knives	74
Cheese	183, 277, 276
Chelonia mydas	22
virgata	22
Cheloniidæ	22
Chelydra serpentina	22
Chelydridæ	22
Chemical application of hoofs and claws	203–205
preparations, Consumption of	299
products	175, 219
products and agents in arts and medicines	229–231
products from birds	230
products from crustacea	231
products from fishes	230–231
products from insects	229–231
products derived from mammals	229–230
products from mollusks	231
products from protozoans	231
products from radiates	231
products from reptiles	230
products from worms	231
Chests, Medicine	167
Chickaree	14
Chicken, Canned	185
Chief Mountain Lake White-fish	57
Chilichthys turgidus	24
Chilomycterus fuliginosus	24
" geometricus	23
Chimæra, Brown	65
Pacific	65
plumbea	65
Chimæridæ	65
Chinchilla (Chinchilla lanigera)	193
Chipmunk	14
Chirostoma californiensis	53
" notatum	53
Chirus constellatus	35
guttatus	35
pictus	35
Chloral hydrate	177
Chlorodesmis (?)	270
Chnoöspora fastigiata	271
Chocks	151
Chœrojulis radiatus	36
Chogset	36
Choice, Sailor's	46
Choker, Hog	26
Chondria atropurpurea	266
" dasyphylla	266
" littoralis	266
" striolata	266
" tenuissima	266
Chondrostei	64
Chondrus affinis	268
Chondrus crispus	268
Chopping-knives	74–77
Chopsticks	117
Chorda filum	270
Chordaria abictina	270
" divaricata	270
" flagelliformis	270
Chrysymenia halymenioides	268
" uvaria	268
Chub Sucker	61
Chulocladia ovalis	266
Ciliata argentata	30
Cirripedia, injurious	262
Cirrostomi	70
Civet, Imports of	297
Cladophora arcta	271
" fracta	271
" lætevirens	271
" lanosa	271
" membranacea	271
" rupestris	271
" uncialis	271
Cladostophus spongiosus	270
" verticillatus	270
Clam-hooks, hoes, and picks	80
Clam-knives	75
Clam-rakes	81
Clam-shovels	79
Clams	86
Canned	187
Deep-sea	86
Hen	137
Little Neck, Canned	187
Long	137
Clap-nets for birds	130
Clark's cans	247
troughs	245
Claw, Devil's	161
Claws	203
of bear	203
of puma	203
of wolf	203
Clays	177
Cleaners	171
Cleaning fire-arms	93
preparation	177
Clearing-rings	122
Clear-nosed Skate	66
Cleats	155
Clews	150, 151
Closets, Dark	178
Clothing	164, 165, 188–196
Feathers for	219
for hands	165
Cloths woven from feather	196
&c., Imports of	286
Club-fish, American	186
Clubs, Armed	71
(as missiles)	87
with bone-points	71
Fishermen's	71
Hunting	71
with metal points	71
Salmon	71
Stone-headed	71

	Page.
Clubs, with teeth points	71
Unarmed	71
Clupea harengus	60
" mirabilis	60
Clupeidæ	59
Clutching-traps	134
Coatimundi	5
Cob-house bird-traps	134
Cobia	52
Coccinella	229
Cochineal, Canadian	229
colors, Propagation of	175
dye (Coccus cacti)	228
insects, Propagation of	248
Imports and exports of	298–299
Cockles (Cardium edule)	187
Cocoons, Boiling the	171
Gelatine from	187
Codium tomentosum	270
Cod, Dried	183
Cod-fish	29
Codling, Spotted	30
Cod-liver oil	226, 296–297
Cod, Salted	185
Tom	29
Cod-seines	127
Cods' tongues	185
Collars, Cormorant	137
Dog	137
Collecting-tank, Army	176
Collections	241
Collodion	177
Colonia powder	91
Coloring from birds	228
fishes	228
insects	228–229
mammals	228
mollusks	229
materials	228–229, 298
Columbia Black-tailed Deer	9
Combing	170
Commercial statistics of animal products in the United States	273
Commissary supplies	162–164
Common Eel	63
Flounder	27
Mouse	17
Porpoise	10
Seal	5
Silk-worm, Silk of	196
Skunk	4
Sucker	61
Compasses	166
Composition shell-work	207
Conch shell (Strombus gigas)	206
Condylura cristata	14
Conepatus mapurito	4
Conger Eel	63
Congridæ	63
Consumption of bristles	295
chemical preparations	299
coral	290
coloring materials	298
fats	296–297
leathers	296
Consumption of fish	280
gelatine	296
hair	294
isinglass	296
ivory and its manufactures	289
leather	290
medicines, &c	299
oils	296–297
perfumery materials	298
quills	296
shell	290
silk and its manufactures	289
soaps	296–297
specimens of natural history	300
wax and its manufactures	299
whalebone	290
Cooking-apparatus	162
Cooling	174
Copses, Movable	141
Coquette	38
Coquina	207
Coracles	146
Coral	207, 262, 290
as a material	207
Fan	207
for building	207
Calcined	207
Preparation of	174
Red	207
imitations of	207
White	207
Coral-dredge	129
Coral-rock	207
Corallina officinalis	267
" squamata	267
Corals, Propagation of	248
Coral-tongs	86
Cordylocladia conferta	267
Cord-twisting apparatus	89
Coregonidæ	57
Coregonus clupeiformis	57
" labradoricus	57
Cormorant collars	137
Cormorants	137
Corrals	131
Corrosive sublimate	136, 178
Coryphæna punctulata	43
" Sueuri	43
Coryphænidæ	43
Cotlidæ	34
Cotton lines	115
Cotton-oil and its manufacture (accessory)	109
Cottus grœnlandicus	34
" Mitchilli	34
" octodecimspinosus	34
Conches	162
Covers	141
for boats	141
for hunters	141
Movable	141
Stationary	141
Cow-fish	10, 11, 24
Cow-nosed Ray	65
Cowry, Specimens of (Cypræa moneta)	206
Coyote	189

	Page.
Crab-eater	52
Crab-nets	129
Crabs' eyes	207, 231
Crab-stones	207
Cramp-fish	66
Crates, Moss (Stone's)	247
Crevallé, Horse	42
Yellow	41
Cribbles	246
Crimpers	92–93
Cristivomer namaycush	58
Croaker	45
Crocodile, Florida	21
Crocodilia	21
Crocodilidæ	21
Crocodilus americanus	21
Cronania attenuata	269
Cropping	170
Cross-belts	166
Cross-bows	88
Cross-bow traps	135
Cross fox (Vulpes alopex decussatus)	189
Crotalin of rattlesnake and copperhead	230
Crow, Quills of	219
Crushing-traps	135
Crustacea	259
Chemical products of	231
decapoda	260
decapoda injurious	261
isopoda injurious	260
isopoda, useful	260
phyllopoda, useful	259
stomatopoda for food	260
Cryptacanthidæ	31
Cryptacanthodes inornatus	31
" maculatus	31
Cryptonemia crenulata	268
Cuckold	24
Culture and protection	233
Culture of fishes	245–247
Cunner	36
Cup-leads	80
Cups, Case of (Wilmot's)	247
Curriers, Implements employed by	171
Currying	172
of leather	171
methods of the Eskimo and Indian	171
Curved sticks	87
Cutters, Bait	138
Cutters, Wad	92
Cutting and other processes	173
Cutting in and stowing	174
Cutting, Ivory	173
Cutting-spades	76, 77
Cuttle-fish bone	187, 231, 207
Imports of	299
Cuttles and squids	251
Cusk	30
Cyanide of potassium	136
Cybium caballa	41
" maculatum	41
" regale	41
Cycleptus elongatus	61
Cycloganoidei	63
Cyclopteridæ	33
Cyclopterus lumpus	33
Cymopolia barbata	271
Cynocephalus glaucus	68
Cynomys columbianus	16
" ludovicianus	16
Cynoscion carolinensis	44
" nothus	44
" regalis	44
Cypraea, Shells of	207
Cyprinidæ	61
Cyprinodon, Short	56
" variegatus	56
Cyprinodontidæ	56
Cypselurus furcatus	55
Cystoclonium purpurascens	268
Cystophora cristata	6
Cystophorinæ	6

D.

	Page.
Dactylopterus volitans	33
Damalichthys vacca	37
Daman, Hyraceum of	228
Dark closets	178
Darts and lances	88
Dasya callithamnion	265
" elegans	265
" Gibbesii	265
" Harveyi	265
" lophoclados	266
" mollis	265
" mucronata	265
" plumosa	266
" ramosissima	265
" Tumanowiegi	266
" Wurdemanni	265
Dasycladus clavæformis	271
" occidentalis	271
Dasypodidæ	20
Dead-falls	135
Decapterus macarellus	42
" punctatus	42
Deck-scrapers	160
Decoy animals and birds, Living	139
blanket (for antelopes)	141
swimming-birds (carved in wood)	139
swimming-birds (from bird skins)	139
swimming-birds (in tin with wooden bottoms, &c.)	140
brants, Tame	139
dogs used in hunting ducks	139
ducks, Tame	139
Decoys	137, 138–141
Scent	138
Sight	139–141
Sound	138
Decoy-waders (carved in wood)	139
(stamped in tin)	139
"Deep-sea clams," Ross	86
gear	96-97
Deer, Black-tailed (Cariacus columbianus)	193
Hair of (on skin)	218
heads, Masks for	141
Hoofs of	202
Salted	184
Sinews of	215

	Page.
Deer, Virginia (Cariacus virginianus)	8, 9, 193
Deer-hair brushes	218
Deer-leather	209–210
Deer-sledges	142
Defensive armor	165
Delesseria alata	267
" decipiens	267
" hypoglossum	267
" involvens	267
" Leprieurii	267
" quercifolia	266
" tenuifolia	267
Delineating apparatus, Other	178
Delineators, Mechanical	178
Delphinapterinæ	10
Delphinapterus catodon	10
Delphinidæ	10
Delphininæ	10
Delphinus Bairdii	10
" bombifrons	10
Dentalium, Shells of	206
Deposits, infusorial, Specimens of	207
Desiccated meat	182
milk	182
Desmarestia aculeata	270
" ligulata	270
" viridis	270
Destroying injurious species, Apparatus for	243
Detachable-head spears	83–85
Devil's Claw	161
Diamond-back Terrapin	21
Diamond-beetles, Brazilian	208
Dicotyles torquatus	9
Dicotylidæ	9
Dictyasyhæria favulosa	271
Dictyota acutiloba	269
" ciliata	269
" dichotoma	269
" fasciola	269
" Kunthii	269
Didelphidæ	20
Didelphys virginiana	20
Digenia simplex	266
Dingies	146
Diodontidæ	23
Diplectrum fasciculare	50
Dip-nets	128
Dipping	171
Dipping apparatus	248
Disgorgers	122
Disguises	137
Disks (thrown by hand)	87
Ditch fish-ways	241
Doctor-fish	38
Dog-carts	137, 142
Dog-collars	137
Dog, Eskimo	188
Black	69
Greenland	69
Prairie	16
Sea	5
Short-tailed Prairie	16
Smooth	69
Spined	69
Dog-food	137
Dog-harness	142
Dog-muzzles	137
Dog-oil	223
Dog-sledges	142
Dog-whips	136
Dog-whistles	136–137
Dogs	136
Album græcum of	229
Kennels for, &c	243
Teeth of	197
Decoy, used in hunting ducks	139
Dolium, Shells of	206
Dolphin	43
Small-spotted	43
Domestic animals, Oil and fat from	223
Domestic exports	277
Domesticated animals, Food for	187
Door-traps	133–134
Dorosomidæ	60
Dorys	146
Dory scoop	160
Dorysoma cepedianum	60
Double box-traps	133
Down of birds	220
of geese	220
of eider-duck	220
of rabbits	219
for stuffings, Preparation of	170
of swans	220
Drag whale-line	117
Drailing-tackle	96
Drails	100–101
Drawers, Charge	93
Dredge, Coral	129
Ordinary	129
Dredge-line rollers	119
Dredge-rake	129
Dredges	129
Hand	79
Dredge-tangles	87
Dress-goods, Imports of	286
Dress and stay maker's bone, Manufacture of	173
Dressers	171
Dressing	171
Dressing, Feather	172
Dressing fur, Process of	172
gut and sinew, Methods of	171
leather	172
Dried abalones (Haliotis)	184
cod	183
grasshoppers	184
holothurians	184
lizards	183
meat and blood, Guano from	232
mullet	183
siphons (Schizothœrus)	184
slugs (Limax, &c.)	184
worms	184
Dried and smoked beef	182
flying-fish	183
foods	182–184
garfish	183
roes	183
Drift-nets	124–125

	Page.
Drowning-out apparatus	136
Drugs	175
Drum	44
Fresh-water	45
Dryers, Beach	168
Drying and steaming sand-bath	172
Drying-flake	168
Drying-houses, Aboriginal	169
Drying, Preservation by	168–170
Dualine	91
Ducking-boats	148
Duck, Quills of	219
Dudley hunters' knives	72
Dugong-oil	223
Dug-out canoes	144
Dung	229
Dung of animals used in calico-printing	228
Duplicidentata	18
Dusky Shark	68
Dussumieridæ	59
Dye, Bed-bug	229
Cochineal	228
Lac	229
Dyeing	171–172
Dye-stuffs, Sea-snails for	252
Dyes from gasteropods (Murex, Purpura, &c.)	229
Dyes from nudibranch mollusks	229
from trombidium	229
Dynamite	91
Infusorial earth for	208

E.

Eagle, Quills of	219
Ray	65
Ear-shells (Haliotidæ)	206
Earth, Infusorial	231
Earths, Infusorial	207–208
Eater, Crab	52
Echeneididæ	52
Echinoderms	208
Echinorhinidæ	70
Echinorhinus spinosus	70
Ectocarpus Farlowii	270
" fasciculatus	270
" firmus	270
" granulosus	270
" Hooperi	270
" siliculosus	270
" viridis	270
Edentata	20
Eel-bobs	97
Eel, Common	63
Conger	63
Lamprey	70
leather	216
Madeira	63
Pacific Rock	32
Rock	32
Sand	31
Snipe	63
spears	82
skins of (Anguilla vulgaris)	216, 231
Eel-pots without leaders	132–133
Eel-pout	31
Eel traps	131
Eel-weirs with leaders	132
Egg-nippers	246
Eggs, Albumen of	230
Exports and imports of	276–277
Egg-shells	230
Eggs, Shell of	228
Yolk of	276
Eglantine Skate	66
Ehinoids, Spines of	208
Eider-duck, Down of	220
Eider leather	215
Elachista fucicola	270
Elasmobranchiates	65
Elecate canadus	52
Elecatidæ	52
Elephant, Sea	6
Elephant-seal	6
Elk, American	8, 193
Antlers of	202
ivory	197
leather	210
Salted	184
Elopidæ	59
Elops saurus	59
Embiotoca Jacksoni	37
" Webbi	37
Embiotocidæ	37
Emydidæ	21
Ena or arindy, Silk of (Bombyx cynthia)	196
Encircling-nets	126
Endocladia muricata	268
Enemies of useful animals	244
and parasites of American oysters	255–256
Engraulididæ	61
Engraulis vittata	61
Engraving illustrations, Methods of	178
Enhydra marina	4
Enhydrinæ	4
Entangling-lines	87
nets	122
Enteromorpha clathrata	271
" compressa	271
" intestinalis	271
Ephippiidæ	51
Epinephelus	49
" Drummond-Hayi	50
" guttatus	50
" morio	49
" nigritus	50
" striatus	50
Equipments, Animal	142
Personal	164–167
Erethizon dorsatus (var. epixanthus)	18
" dorsatus (var. dorsatus)	18
Eretmochelys imbricata	22
" squamata	22
Erignathus barbatus	6
Erimyzon Goodei	61
" sucetta	61
Ermine or weasel (Putorius erminea)	190
Erythrotrichia ceramicola	269
Eschrichtius robustus	12
Eskimo and Indian carrying methods	171
auk-nets	129

Page.

Eskimo Dog (Canis) 188
harpoons (stone, bone, iron) 83–85
netting-needles 131
whalebone springs 136
Esocid 55
Esox americanus 55
" lucius 55
" nobilior 55
" reticulatus 55
"Essence of anchovies" 186
Essence d'Orient 228
Etrumeus teres 59
Eubalæna cisarctica 13
" Cullumach 13
Euchalarodus Putnami 26
Eucheuma (?) acanthocladum 267
" isoforme 267
Eucinostomus argenteus 46
" Lefroyi 46
Eugomphodus littoralis 68
Eulamia Milberti 68
" obscurus 68
Euleptorhamphus longirostris 55
Eumesogrammus subbifurcatus 31
Eumetopias Stelleri 5
Eupomotis aureus 48
European Leech (Hirudo medicinalis) 231
Euthora cristata 267
Eventognathi 61
Exocœtus exiliens 54
" noveboracensis 55
" Rondeletii 55
Explosives 91
Exports, Aggregate net, for 1875–'77 301
of anchovies, preserved, Foreign 283
of living animals, Domestic 274–275
Net 301
of bacon and hams 277
of beef, fresh 277
salted 277
of bone-black, &c 299
of bones, &c 300
of boots and shoes 292–293
of butter 277
of tallow candles 297
of carpets, woolen 287–288
of horned cattle 274
of cheese 277
Domestic 277
of fish 281–282
by countries 282
of furs, by districts and countries 284
of eggs 277
of fish, cured 281
dried or smoked 281
by districts 281
fresh 281
pickled 281
Net 301
of food products, except fish 277–278
Foreign, of fish 283
of pickled herring 283
of fish-oils 297
of sardines, preserved 283

Page.

Exports, Foreign, of silk manufactures 289
of fur-skins 284–285
of guano and other fertilizers 300
of hides and skins 292
&c., Net 301
of hogs 274
of horses 274
of lard 277
of leather 292–294
and its manufactures, by districts 294
and its manufactures, by countries 293
Net, of leather, &c 301
of manures 301
of meats, preserved 277
of milk, condensed 277
of morocco and other fine leather 292–293
of mules 274
of mutton 277
of lard-oil 297
of neat's-foot oil, &c 297
of oils and fats 297–298
of oysters 281
of sperm-oil 297
of whale and fish oil 297
Net, of oils and fats 301
of pork 277
Net, of provisions 301
of sheep 274
of saddlery, harness, &c 292–293
of silk, raw 289
of soap 297
of spermaceti 297
of tallow 297
of wax 299
of woolen manufactures 287–288
Net, of wool, &c 301
of wools, &c., by districts and countries 287–288
External parasites 244
Extra limital oysters 254
Extract of fish 187
of meat, and imports of 182, 276
Extraction of bird-oils 175
of fish-oils 175
of gelatine 175
of glue 175
of isinglass 175
of other mammal oils 175
of reptile-oils 175
of whale-oil (with models) 174–175
Eye goggle 41
Moon 59
powder 230

F.

Fabrics, feather, Preparation of 170
Manufacture of 170–171
Textile 195
Face, Nets for 165
Factory, lobster-canning, Model of 169
Falcons 137
Fallow Deer 9
Falls, Dead 135

	Page.
Falls, Spear	135
Fall-traps	135
Farms, Fish (models)	244
Fat, Bear	223
Fats, Consumption of	296–297
Imports of	296–297
and oils	223–227
Feather-dressing	172
Feather-fabrics, Preparation of	170
Feathered arrow-shafts	220
Feathering brushes	247
quills	247
Feathers	219–220
for artificial flies	220
of birds, Prepared from	196
Consumption of	296
for clothing	219
Implements for	220
Imports of	296
used in other manufactures	220
ornamental, Method of preparing	172
for ornaments	220
for plumes	220
Preparation of	170
for textile fabrics	220
Feet of deer	202
and hoofs, Gelatine from	187
adhesive, Imports of	287
Felting	170
Hair used in	217
Felts, Manufacture of	170–171
Ferrets	136
Ferrocyanide of potassium	228
Fertilizers	231, 232
Algæ for	265
Other animal	232
Manufacture of	176
Fiber-netting	130
Fiber, Whalebone	196
zibethicus	18
Fibers for manufacture of plush carpets	171
Fiddle-fish	67
Field-glasses, &c	166
Figure-four traps	135
File-fish	24
Long-tailed	25
Orange	25
Spotted	24
Storer's	25
Filters, Infusorial earth for	208
gravel	246
Finback Whale	12, 13
Finner, Oregon	13
Finning-knives	74
Fire-arms	90
Cleaning (accessories)	93
Loading (accessories)	93
Repairing (accessories)	93
Fire hunting and fishing, Lanterns, &c., for	141
Fire-proof packing, Infusorial earth for	208
Fish, Canadian, not liable to duty	279
Commission, United States, Methods of	233
Commission stands	178
Consumption of	280
Fish, cured, Exports of	281
Domestic exports of	281–282
Domestic exports, by countries	282
dried or smoked, Exports of	281
Exports, by districts	281
Extract of	187
Foreign exports of	283
fresh, Exports of	281
gelatines (see 24)	187
Imports of	278–280
Imports of fresh	278
Net exports of	301
Net imports of	301
pickled, Exports of	281
Fish-bones	200
Fish-cars for aquatic animals	244
Fish-carts (used in Nantucket)	142
Fishermen's club	71
flasks	167
sheath-knives	74
Fisher or pekan (Mustela Pennanti)	189
Fishes	23
Chemical products from	230–231
Coloring from	228
Culture of	245–247
Hunting	137
Imitations of	140–141
Ivory of	199
Propagation of	245–247
Scales of	205
Fish-farms (models)	244
Fish-guano works, Model of	176
Fishing-boats	142
Fishing-houses	162
Fishing-lances	78
Fish-jigs, Many-pointed	82
Fish-knives	74
Fish-lances	78
Fish-lice	244
Fish-oils	226–227
Extraction of	175
Soaps from	227
Fish-ponds (models)	244
Fish-pots	132
Fish-preparations	183–187
Fish-salting	169
Fish-scale pearl	228
Fish-scale work, Preparation of	174
Fish-scraps	187
Fish-skins, Leather prepared from	216–217
Fish-slides	131
Fish-snares (wire, gut, hair, &c.)	86
Fish-spears, Aboriginal	83
Fish-spike	39
Fish-way, Brackett's patent	242
Fish-ways	241–243
Box	242
"Cape Cod"	241
Ditch	241
French	241
Gap	241
Mooring-float	243
Pool	242
Oblique groove	241
Single groove	241

	Page.
Fish-ways, Spiral	243
Step	242
Fistularia serrata	54
Fistulariidæ	54
Fixed-head spears	82
Flagging-irons, &c	160
Flake-drying	168
Flakes, Massachusetts	168
Newfoundland	168
Flange	129
Flannel screens	246
Flasks	94
Hunter's and fishermen's	167
Flat-fish	26
Putnam's	26
Flax snoods	116
Flaying-knives	73
tools	178
Flexible materials	208
from invertebrates	222
Flies, Artificial	138
for bass	102–114
on hooks	102
and other insects	137
Artificial, for salmon	102–114
trout	102–114
Flint-chipping apparatus	89
Flitching-knives	75
Floating-cages for aquatic animals	244
Floating trawl-lines	97
Floats	117
Harpoon	117
Keg	117
Manufacture of, &c	172
Seine	117
Flocking for wall-paper from refuse quills	171
Flocking-wool	228
Florida Crocodile	21
Gopher-tortoise	21
Rat	18
Salamander	17
Terrapin	21
Flounder, Common	27
Four-spotted	27
Pole	27
Rough	28
Rusty	26
Smooth-back	26
Southern	27
Watery	27
Winter	26
gear	97
Flying-fish, Bearded	55
Black-winged	55
Butterfly	54
Dried and smoked	183
Flying Gurnard	33
Fly-fishing, Simple reels for	118
tackle	95
hooks	138
Fog-horns	160
Folding nets	129–130
Food, Algæ used for	265
for animals	187
Food, for domesticated animals	187
Bivalve shell-fish for	253
Bivalves for	256–257
Lobsters, shrimp, crawfish, crabs, for	260–261
products, except fish, Exports of	277–278
products, except fish, Imports of	275–276
poisons	136
Preparation of	168–170
Preservation of	168–170
Sea-snail used for	251
Foods	179–187
Canned	184
Dried and smoked	182–184
In a fresh condition	179
Pickled	184
Salted, canned, and pickled	184–187
Foot-path snares	134
Foot-stops	183
Forceps	178
Force-pumps, Air	247
Foreign animals, Imports of	274
Fork, Blubber	174
Forks	81
Fork-tailed Catfish	62
Formic acid	229
Manufacture of	175
Fossils	300
Four-bearded Rockling	30
Four-spined Stickle-back	54
Four-spotted Flounder	27
Fowls, foreign, Imports of	274
Fox, Arctic (Vulpes lagopus)	189
Cross (Vulpes alopex decussatus)	189
Gray (Urocyon virginianus)	189
Kit (Vulpes velox)	189
Red (Vulpes fulvus)	189
Silver (Vulpes alopex argentatus)	189
Squirrel	14
Foxes, Teeth of	197
Frames	177–178
Wire	178
Wooden	178
French bird-trap	135
fish-ways	241
Fresh-water Drum	45
Herring	60
Friar	53
Frog culture, Methods of	245
Frost-fish	29, 56
Frozen glue	221
Fucus distichus	269
" fastigiatus	269
" furcatus	269
" serratus	269
" vesiculosus	269
Fuel	162
Fulling	170
Fundulus pisculentus	56
Funnel-trap	132
Fur of beaver (castor)	196
Fur of hare	196
of mole	196
of musquash	196
pack-saddle (Hudson's Bay)	142

Page.

Fur of rabbit 196
Fur-dressing, Processes of 172
Fur-skins, Exports of 284–285
Imports of 283–284
Furniture 162
Furniture-table 163
Fur-robes 162, 188, 195
Fur-seal 5, 191
Antarctic 191
Hair of 195
Furs, Bird 195
Domestic exports of, by districts and countries 284
Imports of 283–284
Net imports of 301
Fusus, Shells of 206
Fyke-bird 133
Fykes (set-nets with leaders) 133

G.

Gadidæ 29
Gadus morrhua 29
Gaff-hooks 80
Galeocerdo tigrinus 69
Galeorhinidæ 68
Gall of animals 229
of animals for dyeing 228
of carp 228
Gall-nuts 231
Galls, Nut 229
Game-bags 166
Game and fish baskets 167
fish, &c., Preservation of 241
laws 241
Gangs of hooks for minnow-bait 96
Gar-fish, Bow-mouthed 54
Dried and smoked 183
Silver 54
Gap fish-ways 241
Gar Pike 64
Short-nosed 64
Gaspereau 60
Gasteropods, Dyes from (Murex, Purpura, &c.) 220
Gasterosteidæ 53
Gasterosteus noveboracensis 53
Gear, Bottom 97
Deep-sea 96–97
Geese, Down of 220
Gelatine, (Consumption of) 22, 177, 296
Imports of 296
and isinglass 220
Bird 221
Bone 187
from cocoons 187
Extraction of 175
for food (see under 4) 200
from feet and hoofs 187
Insect 187
from ivory shavings 187
from leather shavings, &c 220
Molds of 177
Gelatines 187
and oils 174
Bird 187

Page.

Gelatines from bones and ivory shavings 221
of fish (see 24) 187
Mammal (see 24) 187
from sinews 187
from tanner's refuse 187
Gelidium cartilagineum 267
" corneum 267
" Coulteri 267
Geomyidæ 17
Geomys bursarius 17
" castanops 17
" tuza 17
Gerridæ 46
Ghost-fish 31
Giant-powder 91
Gigartina acicularis 268
" canaliculata 268
" mamillosa 268
" microphylla 268
" radula 268
Gill-net 122
Gill-nets used in Great Lakes 122–123
Gimp snoods 116
Ginglymostoma cirratum 69
Ginglymostomatidæ 69
Girths 142
Glass-grilled boxes (Coste's) 246
Glires 14
Globes 244
Globe-sights 93
Globicephalinæ 11
Globicephalus intermedius 11
" Scammoni 11
Gloiosiphonia capillaris 269
Gloves, Leather for manufacture of 211–214
skin, kid, &c., Imports of 292
Glue 220
Exports and imports of 296
Extraction of 175
Frozen 221
made from waste 217
Manufacture of 203
Glues 177
Glue-sticks 89
Glutton 4
Glycerine 176
Imports of 297
Glycerines, Manufactured 225
Glyphidodon saxatilis 37
Glyptocephalus cynoglossus 27
Goat, Horn of 201
leather 209
Mountain 7
Sinews of 215
Goat's wool (for wigs, &c.) 195, 217
Goggle-eye 41
Goggles, Snow 166
Golden Tail 48
Gold-fish 62
Goode's Sucker 61
Goose (Anser sp.) 195
Canned 185
Fish 23
oil 226
Quills of 219

	Page.
Gopher, California	17
Gray	15
Pocket	17
Pouched	17
Small-footed Pouched	17
Striped	17
Texas Pouched	17
Yellow	16
Gopher-tortoise, Florida	21
Gracilaria armata	267
" cervicornis	267
" confervoides	267
" multipartita	267
Graduating-sights	93
Graining	171
Grampus	11, 13
" griseus	11
" Mottled	11
" Stearnsii	11
" White-headed	11
Grampus-oil	225
Grapnels	81
Grappling-gear	161
irons	81
Gräsö Whale	12
Grasping-hooks	80
Grass Bass	48
Grasshopper paste	137
Grasshoppers, Dried	184
Grateloupia Cutleriæ	268
" filicina	268
" Gibbesii	268
Gravel-bottomed troughs	245
filters	246
Gray Fox (Urocyon virginianus)	189
Gopher	15
Grayling, Intestines of	231
Michigan	58
Gray Rabbit	19
Seal	6
Snapper	48
Squirrel	14
Whale	12
Great Lakes, Boats of	149
Grease, Imports of	297
Greenland Dog-fish	69
Sculpin	34
Turbot	28
Green Turtle	22
Green's cans	247
Griffithsia Bornettiana	269
Grilles	246
Grinders	176
Grindle	63
Grinnellia, Americana	266
Grizzly Bear	4
Grommets	152–153
Grouper	50
Black	50
Rock	50
Growth of East American oysters	255
Grunt, Speckled	47
Yellow-finned	47
Guanaco hair	195
Guano and other fertilizers, Exports of	300
Guano and other fertilizers, Imports of	300
Net imports of	301
Bat	231
Bird	231
from dried meat and blood	232
Menhaden	232
Pacific, preparations illustrating	232
Preparation of	176
Guanos, Artificial	232
Natural	231
Guards, Wrist	166
Guasa	50
Gulf Menhaden	60
Snapper	48
Gulo luscus	4
Gun-cases	95
Gun-cotton	91
Gunpowder	91
Gun-racks	95
Guns, Humming-bird	90
Guns and pistols	90, 135
Gunwale winches	119
Gurnard, Flying	33
"Gut," Silk-worm	222
Gymnogongrus Griffithsiæ	268
" linearis	268
" Norvegicus	268
" tenuis	268

H.

	Page.
Haddock	29, 183
Norway	34
Hæmatin from blood	228
Hæmylum	47
" arara	47
" arcuatum	47
" chrysopterum	47
" elegans	47
" formosum	47
Hag-fish	70
Hair of American badger (Taxidea Americana)	217
of Antelope (on skin)	218
bracelets, &c., Imports of	294–295
and bristles for artificial flies (see under B 45)	219
and bristles for brushes	217–219
of bats	195
of bear	217
Buffalo	196
Camel's	195
Cattle	219
Consumption of	294
cloth, Imports of	294–295
curled, for mattresses, Imports of	294–295
of deer (on skin)	218
for felting (see under 8)	217
Fur-seal	195
Guanaco	195
hog's, Imports of	294–295
Horse	196–219
Human	195
human, Imports of	294, 295
Human, for commerce	217
human, Refuse of, &c	219

Page.

Hair, Imports of....295–301
Llama....195
for manufactures....219, 294
manufactured, Imports of....294–295
Moose....195
for ornaments....217
Ox and calf....195
Paco....195
pencils, Imports of....294–295
Possum....196
of raccoon....195
Refuse....219
Sable's....195
Seal (Phoca vitulina)....192
of squirrel....217–218
for stuffing....219
Tail....39
unmanufactured, Imports of....294–295
Vicugna....195
Weasel's....195
for weaving....217
wigs....217
and wool....217
work....172
Hairy Box-fish....24
Hairy-tailed Mole....14
Hake....29, 183
Blue....30
Long-finned....30
Silver....30
Squirrel....29
Halatractus zonatus....43
Half-beak....55
Half-round spades....77
Halibut....27
fins, &c....185
Salted....185
Smoked....183
smoke-houses....169
Halimeda opuntia....270
" tridens....270
" tuna....270
Haliotis, Methods of drying....169
Shells of....206
Haloporphyrus viola....30
Halosaccion bucicola....268
" hydrophora....268
" ramentaceum....268
Halymenia Floresia....268
" ligulata....268
Hammer-head Shark....68
Hammocks....162
Hams, Kinds....182
Hand-dredges....79
Hand-gear, Short....96
Hand-implements....71
Handle-nets....128
Handles, trinkets, billiard-balls, &c., Manufacture of....173
Handling apparatus for ice....168
Hand-scoops....79
Hands, Clothing for....165
Hanging-needles....131
Hanks....150, 151
Haplodontia leporina....16

Page.

Haplodontidæ....16
Haploidonotus grunniens....45
Haplomi....55
Harbor Seal....5
Hard materials....197–207
Hard tissues, Preparation of....173–174
Hare....194
Audubon's....19
Bachman's....19
Baird's....19
California....19
Fur of....196
Jackass....19
Northern....18
Polar....18
Prairie....19
Red....19
Trowbridge's....20
Virginia....18
White....18
Harness....142
Harness, Dog....142
Harpe rufus....36
Harpoon-floats of bladder, skin, and wood....117
Harpoon-lines....97
Harpoon, Rest for, &c....162
Harpoon-arrows....89
Harpoon-knives....76
Harpoons, Eskimo....82
Harpoon-spears....85
Harpoon-traps....135
Harp Seal (Pagophilus grœnlandicus)....6, 192
Harris's Ground Squirrel....15
Harrow-tangles....87
Hartshorn (see 30)....202
Harvest-fish....43
Short....44
Hat and bonnet makers' bone, Manufacture of....173
Hatchets, Whalemen's boat....76
Hatching accessories....246–248
apparatus....245–247
Hatching-basket....246
Hatching-boxes (floating)....246
Hat manufacture....170
Hats....165
Hawksbill Turtle, Oil of....228
Hawksbill Turtle....22
Head-axes for whalemen....76
Heading-knives....73
"Head-knives"....171
Head-oil, Preparation of....174
Head-spades....77
Hedge-hog, American, Quills of....219
Heliastes insolatus....37
Heliotyping illustrations, Methods of....178
Helmet shell (Cassis rufa, &c.)....206
Hemdurgan....34
Hemibranchii....53
Hemitripteridæ....34
Hemitripterus americanus....34
Herring....60, 137
Big-eyed....59
Canned....186
Fresh-water....60

Page.

Herring gill-nets 123, 124–126
oil 227
pickled, Foreign exports of 283
Imports of 278–279
Round 59
Salted 186
Sea 60
Smoked 183
smoke-houses 169
Tailor 60
Thread 60
White-fish 57
Herring-Hog 11
Herring-seines 127
Hesperomys leucopus 17
Heterosomata 26
Hide-lines 116
Hind 50
Hides and skins, Exports of 292
Imports of 291
skins, &c., Net exports of 301
imports of 301
Hildenbrandtia rosea 267
Hippocampidæ 25
Hippocampus antiquorum 25
Hippoglossoides limandoides 27
Hippoglossus americanus 27
Histiophorus americanus 39
Histriophoca equestris 6
Hives (see under E 3) 248
for insects 244
Hog and peccary, Bristles of 218
Choker 26
Herring 11
Viscera of 215
Hogs, Exports of 274
Foreign imports of 274
Holacanthus ciliaris 39
" tricolor 39
Holconotus pulchellus 38
" rhodoterus 38
Holders 89
Holocentrum sogo 44
Holocephali 65
Holothurians, Dried 184
Holsters 95
Holton's vats 245
Honey 230
Imports of 276
Honey-knives 76
Hooded Seal 6
Hood or Bladder-nose Seal (Cystophora cistata 192
Hoods 137
boots, &c 135
Hoofs and claws 202–205
of antelope 202
of bison 202
of deer 202
of horse 202
of musk ox 202
of ox 202
Hook-box 161
Hook gill-nets 123
Hooked instruments 80

Page.

Hooks with artificial flies 102
Baited 95
Blubber 81
Boat 80, 150
Can 81
Clam 80
Fly 138
Gaff 80
Grasping 80
Ice 161
Junk, &c 81
Lance 81, 161
Lip 81
Many-pointed 81–82
Meat 168
for minnow bait, Gangs of 96
mounted on leaders 116
with movable lines 95
Pickerel 135
Plain 97–100
Rabbit 80
Riggers' 152
Single-pointed 80–81
Spring 135
Squirrel 80
with stationary lines 97
Unmounted, recent and aboriginal 97–114
Whalemen's 81
Hoop-nets 128–129
Hopples 243
Hormactis Farlowi 271
Hormotrichum Younganum 271
Horn 201
Burnt 202
of buffalo 201
of goat 201
Imports of 290
and hoof, Preparation of 173–174
as material 202
of mountain goat 201
of mountain sheep 201
of musk-ox (Ovibos moschatus) 201
of Rocky Mountain sheep 202
Pout 62
Horn-cores of ruminants 200
Horned cattle, Exports of 274
Horns 94
of ox 201
of sheep 201
Horse Crevallé 42
Hoofs of 202
leather 209
Mackerel 40
Horse-fish 25
Horse-hair 219
Horses, hair of 196, 219
Imports and exports of 274
or trestles 171
Horse-trappings 142
Hosiery, &c., Imports of 286
Hound-fish 54
Houses, Fishing 162
Hunters' 162
smoke, Herring 169
Human hair 195

Page.

Human hair as article of commerce 217
nails 203
scalp-locks 217
skin, Leather prepared from 208
Humming-bird guns 90
Humpback Whale 12
Hunters, Covers for 141
Hunters' dirk-knives 72
flasks 167
houses 162
knives 71–72
sheath-knives 74
Hunting-animals 136
Hunting-arrows 88–89
Hunting-birds, Accessories to 137
Hunting-boats 142
Hunting-camps 162
Hunting-clubs 71
Hunting-dogs, Accessories to 136
Hunting-fishes 137
Hunting-lodges 141
Hunting-mammals 136
Hunting-skiffs 147
Hunting-suits 164
Hurled spears 88
sticks 87
weights 87
Hydrargyra majalis 56
Hydrate chloral 177
Hydroclathrus cancellatus 270
Hydrolagus Collici 65
Hyodon tergisus 59
Hyodontidæ 59
Hyperoartia 70
Hyperprosopon argenteus 38
Hyperotreti 70
Hypnea cornuta 267
" musciformis 267
Hypsiptera argentea 30
Hypsurus Caryi 37
Hyraceum of the daman (Hyrax capensis) 228
Hystricidæ 18

I.

Ice-boxes 168
Ice-chisels 77
Ice-choppers 77
Ice-cutting apparatus 168
Ice-handling apparatus 168
Ice-hooks 161
Ice-houses 168
Ice-trade (accessory) 168
Ichthælurus furcatus 62
Imitation pearls 206
Imitations of animals and birds 139, 140
of fishes 140, 141
Implements, Barbed 82
employed by curriers 171
Feathers for 210
Hand 71
of manufacture 89
for seizure of object 79
Shells used for 206, 207
Imports, aggregate, Net, for 1875–1877 301
of albumen and lactarine 298

Page.

Imports of ambergris 298
of ammonia 299
of anchovies, preserved 279
of living animals 273
Net, of living animals 301
of bacon and hams 276
of blankets 286
of beef 276
of beeswax 299
of cuttle-fish bone 299
of bones, &c 299–300
of bristles, by countries 295
of butter 276
of Bologna sausages 274
of Canadian fish 279
of cantharides 299
of carbon, animal 299
of carpets 286
of castoreum or castor 298
of cheese 276
of cloths and cassimeres 286
of civet 298
of cochineal 298
by countries and districts 298–299
of foreign animals 274
Foreign, of breeding animals 274
of animals not specified 274
of birds 274
of cattle 274
of dress-goods 286
of eggs 276
of eggs, condensed 276
of eggs, yolk of 276
of fats 296–297
of feathers 296
of felt, adhesive 287
of fish 278–280
of all other fish 278–279
Net, of fish 301
of food products, except fish 275–276
Foreign, of fowls 274
Net, of furs 301
of fur-skins 283–284
of gelatine 296
of gloves of kid skin, or leather 292
of glue 296
of glycerine 297
of grease 297
Net, of guano 301
of guano and other fertilizers 300
of hair-cloth 294–295
of horse hair 294–295
of hair, unmanufactured 294–295
Foreign, of hogs 274
of horses 274
of ivory 290
Foreign, of leeches 274
sheep 274
of hair 295
Net, of hair, &c 301
of hair, curled, for mattresses 294–295
of hair-pencils 294–295
of hair, human 294–295
of herring, pickled 278–279

Page.

Imports of hides and skins 291
of hair bracelets, &c 294–295
Net, of hides, skins, &c 301
of hog-hair 294–295
of honey..... 276
of horn, &c 290
of hosiery, &c 286
of lac, &c..... 298
of lac-dye..... 298
of lard..... 276
of leather..... 290
Net, of leather, &c 301
of mackerel pickled 278–279
of manufactured leather, &c..... 292
of extract of meat 276
of prepared meats, game, &c 276
of milk, condensed or preserved ... 276
of milk, plain..... 276
of cod-liver oil.....296–297
of neat's-foot oil, &c.....296–297
of whale or fish oil.....296–297
of oils 296–297
Net, of oils..... 301
of fish-oils, by countries and districts.....297–298
of phosphorus 299
of pork 276
of poultry 276
Net, of provisions not specified.... 301
of rennets 299
of sardines, preserved 279
of sausage-skins 276
of seal-oil.....296–297
of shawls..... 286
of silk hosiery..... 289
of silk dress-goods..... 289
of other silk manufactures..... 289
of silk manufactures by countries.. 289
of silk, raw.....288–289
Net, of raw silk 301
of soap, common..... 297
of soap, fancy 297
of soaps 296–297
of spermaceti and wax..... 297
of sponges..... 296
of sugar of milk 299
of tallow 296–297
of tongues, salted..... 276
of tripe..... 276
of venison..... 276
of wax..... 299
of wax manufactures not specified.. 299
of sealing-wax..... 299
Net, of wool..... 301
of woolen manufactures not elsewhere specified..... 286
of woolen rags, shoddy, &c 286
of wool pelts..... 290
of wools, &c.....285–286
of wools unmanufactured..... 286
Incisors of beaver 198
Indelible ink, pencils, &c..... 177
India-rubber slings..... 89
Indian raft-boats 144
trade, Sea-snails used in 252

Page.

Inflatable bags 176
Infusorial deposits, Specimens of..... 207
earth for absorbents 208
earth 231
earth for dynamite..... 208
earth for fire-proof packing..... 208
earth for filters..... 208
earth for soluble glass 208
earth for molds for metal casting. 208
earth for making mortar 208
earths 207–208
earths employed in manufacture. 208
earths for window and plate glass..... 208
Injecting-syringes..... 176
Injurious bivalves 258–259
sea-snails..... 253
Ink, indelible, pencils, &c 177
Inks from animal substances, Manufacture of 175
Iodine, Algæ used in manufacture of..... 265
Inorganic materials 271
Insect gelatine 187
Insectivora..... 13
Insect productions 222
powder..... 178
Insects.....184, 208
Cages for.....243–244
Coloring from 228–229
Hives for..... 244
Chemical products from.....229–231
Propagation of 248
Protection from 165
Instruments for cleaning, loading, &c 93
Hooked 80
Optical, &c.....166–167
Prodding..... 78–79
Scooping 79
Internal parasites 244
Intestinal worms..... 244
Intestines of grayling 231
of mammals, Leather prepared from 214–215
Invertebrates, Flexible materials from..... 222
Other materials from..... 208
Investigation..... 233
Iridæ laminarioides..... 268
Irons, Flagging, &c 160
Grappling 81
Lily 83
Isinglass 187, 221–222
from air-bladders, &c. (ichthyocolla) 221
and gelatine..... 220
Consumption of 296
Extraction of 175
from sounds of cod and hake.....221–222
from squeteague (Sciænidae)..... 222
Isogomphodon maculipinnis..... 68
Isospondyli 56
Isuropsis Dekayi..... 67
Italian fishing-boats..... 147
Ivory.....197–199
Ivory-carving 173
Ivory-cutting..... 173

Page.

Ivory, Elk 197
of fishes 199
Imports of 290
of mammals 197–198
and its manufactures, Consumption of 289
narwhal 198
of reptiles 199
shavings, Gelatine from 187
Ivory-black (noire d'ivoire) 200, 228
Manufacturing of 175

J.

Jackass Hare 19
Jacket, Leather 43
Jack Rabbit 19
Jania capillacea 267
" rubens 267
Jaguar 188
Jar mole-traps 131
Jars 176, 246
Anatomical 176
Self-sealing, used in collecting 176
Jaw-bone, Sperm-whale 199–200
Jawed traps 134–135
Jaws of sleeper shark 199
Jerked bear-meat 182
birds 183
and smoked buffalo-meat 182
porpoise-meat 182
seal and walrus meat 182
squirrels and other small mammals. 182
Jerk-nets 129–130
snares 86
Jew-fish 50
Jigs 100–101
Jigs, Squid 82, 138
John Paw (fish) 50
Joree, Silk of 196
Junk-hooks 81

K.

Keg-floats for lobster-pots, gill-nets, &c 117
Kelp-lines 116
Kennels for dogs, &c 243
Kermes (Coccus ilicis) 229
Kettles 162
Killer 11
Kilmagore 36
Kindling fire, Apparatus for 162
King-crab, Shell of (Limulus polyphemus). 207
King-fish 45
Kit-fox (Vulpes velox) 189
Knives 71, 169
Bait-mill 77
Blubber 73
Boarding 73–74
Bone 75–76
Cheek 74
Chopping 74, 77
Clam 75
Dudley hunters' 72
Finning 74
Fish 74
Fishermen's sheath 74
Flaying 73

Page.

Knives, Flitching 75
Harpoon 76
Heading 73
Honey 76
Hunters' 71
Hunters' dirk 72
Hunters' sheath 74
Canning 174
Mackerel-rimmers' fatting 75
Mackerel-rimmers' ploughs 75
Mincing 174
Net-makers' 75
Oyster 75
Ripping 72–73
Sailors' sheath 74
Scaling 74
Slivering 74–75
Splitting 72–73, 75
Stone 75–76
Straight 71–76
Throating 74
Whalemen's boat 73
Kogia Floweri 12
Kogiinæ 12
Koumiss 230
Kyaks 144

L.

Labels 177
Metallic 177
Parchment 177
Labracidæ 51
Labridæ 36
Labyrinth-traps 131–133
Lac, &c., Imports of 298
Lac-dye (Coccus lacca) 229, 298
Lachnolæmus falcatus 36
Lactophrys trigonus 24
Ladles-bait 79, 138
Lady-fish 36, 59
Lagenorhynchus gubernator 10
" leucopleurus 10
" obliquidens 10
" perspicillatus 10
" thicolea 11
Lagodon rhomboides 46
Lake Sturgeon 64
Trout 58
Whiting 57
Laminaria flexicaulis 270
" longicruris 270
" saccharina 270
Lamna cornubica 67
Lamnidæ 67
Lamprey Eel 70
Lampreys, Spiced 186
Lamps 162
Lance, Bomb 92
Lance-bunts 127
Lance-hooks 81, 161
Lancelet 70
Lances, Fish 78
Fishing 78
Seal 78
Whale 78

Page.

Landing-nets 128-129
Lanterns 162
for camp and ship 167
for fire hunting and fishing 141
for still hunting 141
for wecquashing or fire-fishing 141
Lard-oil exports and imports 276-277, 297
Large-mouth Black Bass 49
Lariats 86
Lassos 86
Latilidæ 44
Laurencia cervicornis 266
" gemmifera 266
" implicata 266
" obtusa 266
" paniculata 266
" papillosa 266
" pinnatifida 266
" virgata 266
Laws, Game 241
Leaders 116, 153
Hooks mounted on 116
Leads, Armed 80
Leads, Cup 80
Leaning-knives 174
Leaning and mincing 174
Leather 195
Alligator 215-216
Ass 209
Auk 215
Beaver 214
Beluga 214
Bison 209
Buffalo 209
Caribou 210
Consumption of 290
Currying of 171
Deer 209-210
dressing 172
dressing apparatus, recent and aboriginal 172
Eel 216
Eider 215
Elk 210
Exports of 292-294, 301
Goat 209
Horse 209
Imports of 290, 301
Jacket 43
and its manufactures, &c. (exports and imports) 292-294
Mountain-sheep 210
Moose 210
Ox 209
from pharynx of seal and walrus 215
Porpoise 214
prepared from bird-skins 215
prepared from fish-skins 216-217
prepared from human skin 208
prepared from intestines of mammals 214, 215
prepared from mammal skins 208-214
prepared from reptile skins 215-217
prepared from scale-fish 216
Rat 214

Page.

Leather, Rattlesnake 216
Reindeer 210
Seal 208
Sea-Lion 208
Shark 217
shavings, &c., Gelatine made from 220
Sheep 209
Other snake 216
trimmings 214
Walrus 208
Waste 217
Leatherback Turtle 22
Leathers 208
for manufacture of gloves 211-214
Leathesia tuberiformis 270
Leech, African (Hirudo trochina) 231
American (Macrobdella decora) 231
European (Hirudo medicinalis) 231
Leeches as barometers 231
Foreign imports of 274
Propagation of 248
and worms, Injurious and useful 262
Leggings 165
Lenses 178
Leopard-hunting 136
Leopard Seal 6
Lepidosteidæ 64
Lepidosteus osseus 64
" platystomus 64
Lepiopomus pallidus 48
Leporidæ 18
Leptecheneis naucrateoides 52
Leptocardians 70
Lepus americanus (var. americanus) 18
" americanus (var. Bairdii) 19
" americanus (var. virginianus) 18
" americanus (var. Washingtonii) 19
" aquaticus 20
" Bachmani 19
" californicus 19
" callotis 19
" campestris 19
" palustris 20
" sylvaticus 19
" sylvaticus (var. Audubonii) 19
" sylvaticus (var. Nuttalli) 20
" timidus (var. arcticus) 18
" Trowbridgii 20
Leuciscus pulchellus 62
Leucorhamphus borealis 10
Levels (attached to guns) 93
Liagora pinnata 268
" pulverulenta 268
" valida 268
Lice, Fish 264
Lichens 264
Lifters, Barrel 161
Lights, Artificial 167
Lily-irons 83
Lime 230
Bird 135
Burning of 176
Limes 176, 231, 232
Liming 172
Limph, Vaccine 230

	Page.
Line-floats of wood, cork, and quill	117
Line-holders	119
Line, kyak, Stretchers for	162
Linen lines	115
Lines, Bark	116
Bottom-set	97
Cotton	115
Floating-trawl	97
Harpoon	97
Hide	116
Kelp	116
Linen	115
Loaded	86
(Plaited)	114–116
Seine	97
Silk	114
Surface	97
Trawl	97
(Twisted)	114–116
Twisting apparatus for	116
Wallets for, and other tackle	167
Whalebone	115
Ling	30
Lion, Sea	5
Liostomus obliquus	45
" xanthurus	45
Liparididæ	33
Liparis lineata	33
" Montagui	33
" Striped	33
Lip-hooks	81
Lithofracteur	91
Lithothamnion polymorphum	267
Little Striped Skunk	4
Little Tunny	40
Live-box (Atkins's)	247
Live-boxes, troughs, &c., for microscopists' use	244
Living animals, Exports of	274–275, 301
Imports of	273, 301
decoy animals and birds	139
Lizards, Dried	183
Llama hair	195
Loaded lines	86
Loaders	92–93
Loading fire-arms	93
Lobotes surinamensis	51
Lobotidæ	51
Lobsters, crabs, shrimp, &c	260–261
Lobster-pots	132
Lodges	162
Hunting	141
Loggerhead Turtle	22
turtle oil	228
Lomentaria Baileyana	267
" rosea	267
Long-finned Bonito	40
Hake	30
Long-nosed Skate	67
Sturgeon	65
Long-tailed File-fish	25
Loon (Colymbus torquatus)	195
Lophiidæ	23
Lophius piscatorius	23
Lophobranchii	25
Lophopsetta maculata	27
Lota maculosa	30
Lounges	162
Lump-fish	33
Lustering	172
Lutjanus Blackfordii	47
" caxis	48
" Stearnsii	48
Lutra canadensis	4
Lutrinæ	4
Lycodidæ	31
Lyngbya ferruginea	271
" Kützungiana	271
" majuscula	271
Lynx, Bay (Lynx rufus)	188
Canada (Lynx canadensis)	188

M.

Macerating-vats	177
Maces	171
Machine, Mincing	174
Mackerel	40
gill-nets	125
Horse	40
pickled, Imports of	278–279
purse-seines	129
Salted	185
Spanish	41
Yellow	42
Scad	42
Shark	67
Midge	30
Mackerel-rimmers	75
Mackinaw blankets	162
Macrochelys lacertina	22
Macrorhinus angustirostris	6
Macrurida	28
Macrurus Bairdii	29
" rupestris	28
Mactra, Shells of	206
Madeira-eel	63
Madrepores	207
Malacoclemmys palustris	21
Mallotus villosus	56
Maltese Cat	188
Malthe cubifrons	23
" vespertilio	23
Maltheidæ	23
Mammal furs	188–194
gelatines	187
oils	223, 225
oils, Extraction of other	175
perfumes	227–228
preparations	182–184
skins, Leather prepared from	208, 214
Mammals, Bone of	199–200
Coloring from	228
Hunting	136
Ivory of	197–198
Prepared from hair of	195
Chemical products derived from	229–230
Propagation of	244
Quills of	219
Mammoth Elephant (Elephas primigenius)	197
Manatee	9

	Page.
Manatee-oil	223
Manatee seines	126
Maneater	67
Mangrove Snapper	48
Manna (Tamarix mannifera)	230
Arabian	230
Cedar (Pinus cedrus)	230
Many-pointed fish-jig	82
hooks	81–82
Manufacture of albumen preparations	175
of oammonia	175
of billiard-table cushions	173
of carbazotates	175
of dress and stay makers' bone	173
of fabrics	170–171
of felts	170–171
of floats, &c	172
fertilizers	176
of formic acid	175
of handles, trinkets, billiard-balls, &c	173
of hat and bonnet makers' bone	172
of hair	173
of ink from animal substances	294
of ivory-black	175
of murexides	175
of organ and piano keys	173
of pepsin	175
of perfumes	175
of phosphorus	175
of propylamine	175
of prussiates	175
of quill articles	172
of quill brush-bristles	172
of quills for pens	172
of ribbon-weavers' bone	173
of rosettes, woven work, trinkets, &c	173
of sal ammoniac	175
of stock-makers' bone	173
of stuffings	170–171
of surgical instruments	173
of suspender-makers' bone	173
Textile	170–171
of toothpicks	172
of umbrella-makers' bone	173
of whalebone brushes	173
of wool	286–288
of whip-makers' stock and whips	173
Manufactured leather, Exports of	293
glycerines	225
stearines	225
Manures, Exports of	301
Marine pearl-shells	258
Marmot (Arctomys caligatus)	193
Northwestern	16
Parry's	15
(Spermophilus Parryi)	193
Yellow-footed	16
Marsh Rabbit	20
Marsipobranchiates	70
Masks	141
Masks for antelope heads	141
for deer heads	141
Massachusetts flakes	168
Mast-gear	153
Materials	177
Boat-builders'	154
Coloring	228–229
employed in arts and manufactures	197–232
Inorganic	271
not mentioned	232
Mattawocca	60
Mazama montana	7
May-fish	56
Means of pursuit and capture	71
Measures	92
Ammunition	92
Powder	92
Shot	92
Meat-biscuit	182
Meat, buffalo, Jerked and smoked	182
Desiccated	182
Extract (extractum carnis)	182
Jerked seal and walrus	182
porpoise, Jerked	182
Meat-hooks	168
Meats, Canned	163–164, 185
Canning	169–170
prepared, game, &c., Imports of	276
Preservation of	168–170
Preserved, &c	163, 277
Mechanical delineators	178
Medical outfit	167
Medicine-chests	167
&c., Consumption of	299
Medregal	42
Medusæ	262
Megalops thrissoides	59
Megaptera osphyia	12
" versabilis	12
Megapterinæ	12
Melanogrammus æglefinus	29
Melobesia farinosa	267
" pustulata	267
Menhaden	59–137
Canned	186
guano	232
Gulf	60
oil	227
purse-seines	129–130
seines	126
Spiced	186
Menticirrus alburnus	45
" nebulosus	45
Mephitis mephitica	4
" Mexicana	4
Mercenaria, Shells of	206
" violacea, Shells of	206
Merluciidæ	30
Merlucius bilinearis	30
Meshing-nets	122–126
Mesh-needles	131
Mesoplodon Sowerbiensis	12
Metallic labels	177
Metal points, Clubs armed with	71

Page.

Methods of culture of domesticated animals, &c. 244
of dressing gut and sinew 171
of United States Fish Commission 233
of frog culture 245
of drying haliotis 169
of heliotyping and engraving 178
of manufacturing artificial ice 168
of mink culture 244
of oyster culture 248
of ostrich culture 244
of preparing baits (accessories) 138
of preparing cartridges 92–93
of preparing ornamental feathers 172
of pursuit and appliances 142–167
of terrapin culture 245
of transportation 142–162
of work 233
Metrogaster aggregatus 37
Mexican Ground Squirrel 15
Skunk 4
Michigan Grayling 58
Microcladia borealis 268
" Californica 268
" Coulteri 268
Microgadus proximus 29
" tomcodus 29
Micropogon undulatus 45
Micropterus pallidus 49
" salmoides 49
Microstomidæ 56
Midge, Mackerel 30
Milk, Canned 184
Desiccated 182
Exports and imports of 276, 277
Mills, Bait, knives, choppers, &c 138, 170
Mincing and leaning 174
Mincing-horse 174
Mincing-knives 174
Mincing-machine 174
Mincing-tub 174
Mink (Putorius vison) 190
culture, Methods of 244
Missiles propelled by "throwing-sticks" 88
Missiles 87, 92
Missile-traps 135
Missouri Striped Squirrel 15
Mixers 176
Mixtures, Preservative 176–177
Moccasins 165
Model-bodies, Plaster 178
Model of fish-guano works 176
of lobster-canning factory 169
of oyster-canning factory 169
of propagating-house, &c 248
of salmon-canning establishment 169
of sardine-factory 169
Modeling 177
tools 177
Models of kilns for burning shells 176
of salt-mills 169
Mola rotunda 23
Molds 177
Bullet 92
of gelatine 177

Page.

Molds for metal-casting, Infusorial earth for 208
of paper 177
of paraffine 177
of plaster 177
Mole (Scalops and Condylura sp.) 193
Fur of 196
Hairy-tailed 14
Oregon 14
Silvery 13
Star-nosed 14
traps 135
Molidæ 23
Mollusk preparations 184
Mollusca 251
" acephala 253
" cephalopoda 251
" gasteropoda 251
Mollusk productions 222
Mollusks 137
byssus 222
Coloring from 229
Opercula of 207
Preparations of 187
Chemical products from 231
Propagation of 248
Molva vulgaris 30
Monk-fish 67
Monodon monoceros 10
Moon-eye 59
Moon-fish 51
Moonga, Silk of (Saturnia assamensis) 196
Moose 7
(Alces malchis) 193
Antlers of 202
hair 195
leather 210
Morocco and other fine leather, &c., Exports of 292–293
Morone americana 51
Mortar, Infusorial earth for 208
Mossbunker 59
Moss crates (Stone's) 247
Moths, Exotic silk of 196
Mottled Grampus 11
Mountain Cat (Bassaris astuta) 194
Goat 7
goat, Horn of 201
meal 184
Sheep (Ovis montana) 7, 192
sheep, Horn of 201
sheep leather 210
Mounting of the bones 177
Mouse, Common 17
White-footed 17
Mouse-fish 23
Movable copses 141
covers 141
Moving float fish-ways 243
Mud Catfish 62
Shad 60
Mud-fish 63
Mugil albula 53
" lineatus 53
Mugilidæ 53
Mule Deer (Cariacus macrotis) 9, 193

Page.

Mules, Exports of 274
Mullet cast-net 130
Dried 183
gill-nets 124
seines 126
Smoked 183
Striped 53
White 53
Mullets, Salted 185
Multiplying reels for bass-fishing 118–119
Mummichog 56
Muræoides mucronatus 32
" ornatus 32
Murexides 228
Manufacture of 175
Murex, Shells of 206
Muridæ 17
Mus decumanus 17
Museum storage-tank, Agassiz model 176
Musk of alligator 228
of musquash 227
of musk-ox 227
rat 18
Musk-ox (Ovibos moschatus) 192
Hoofs of 202
Horn of (Ovibos moschatus) 201
Musk of 227
Muskellunge 55
Mus musculus 17
" rattus 17
Musquash (Fiber zibethicus) 194
fur 196
Musk of 227
Mussels, oysters, &c 206
River (Unionidæ) 206, 257
Mustelus canis 69
Mutton, Exports and imports of 276–277
Muzzle-loading arms 90
Muzzles, Dog 137
Muzzle-sights 93
Myliobatidæ 65
Myliobatis californicus 65
" Fremenvillei 65
Myrionema Leclancherii 270
" strangulans 270
Myxine glutinosa 70
Myxinidæ 70
Myxostoma macrolepidotum 61
Myzopsetta ferruginea 26

N.

Nacre 206
Preparation of 174
Nails, Human 203
Naked Stargazer 32
Namaycush Trout 58
Narwhal 10
Ivory of (Monodon monoceras) 198
Nasua fusca 5
Natural baits 137–138
guanos 231
Nautilus and argonaut shells 206
Neat's-foot oil, &c., Exports and imports of 296–297
Needle percussion 91
Needles, Bait 138

Page.

Needles, Hanging 131
Mesh 131
Netting 131
Nemalion multifidum 267
Nematognathi 62
Nemichthyidæ 63
Nemichthys scalopaceus 63
Neotoma cinerea 18
floridana 18
Nereocystis Lutkeana 269
Nest of Cayenne ant (Formica bispinosa) 222
Nests 246
of esculent swallows 187
Net, Gill 122
gill, Salmon hook 124
hoop, Baited 129
Net-makers' knives 75
Net-sinkers 147
Nets 122
Barrier 122
for beds 165
Bird spring 135
Cast 130
cast, Bait 130
cast, Mullet 130
cast, Pompano 130
Clap, for birds 130
Crab 129
Dip 128
Drift 124–125
Encircling 126
Entangling 122
Eskimo auk 129
Face 165
Folding 129–130
gill, Anchored 122–123
gill, Herring 123, 125–126
gill, Hook 123
gill, Mackerel 125
gill, Mullet 124
gill, Other 126
gill, Shad, used in Southern rivers 124
gill, Sisco 123
gill, Trap 123
Handle 128
Hoop 128–129
Jerk 129–130
Landing 128–129
mesh, Bird 122
Meshing 122–126
Parts of, for manufacture (accessory) 130–131
Pigeon 134
Pocket 126
Purse 129
Rabbit 122
Raw material of 130
Skimmer 246
Spring rabbit 130
Set 133
Towing 129
Tow surface 129
Trailing 129
Trammel 126
Netting-fiber 130
Netting, gill, Samples 125

Page.

Netting hung to lines, Samples of 130
Netting-needles 131
Netting-twine 130
Neutria, or coypu (Myopotamus coypus) ... 194
fur 196
Newfoundland flakes 168
Newhouse traps 134–135
New York Stickle-back 53
Nippers 86
Nippers, Egg 246
Nitophyllum (Neuroglossum) Andersonii ... 267
" areolatum 267
" laceratum 267
" latissimum 267
" punctatum 267
" Ruprechtianum 267
" spectabile 267
Nitroglycerine 91
Nooses 86
Noose-traps 134
Northern Barracuda 52
Hare 18
Northwestern Marmot 16
Norway Haddock 24
Notemigonus americanus 62
" chrysoleucus 62
Nozzle-rose (for washing eggs) 247
Nudibranch mollusks, Dyes from 229
Nurse Shark 69
Nut-galls 229

O.

Oars 159
Oblique groove fish-ways 241
Obscuras, Camera 178
"Ocean Trout" 186
Oceanic Bonito 40
Ocelot (Felis pardalis) 188
Octariidæ 5
Ocyurus chrysurus 48
Odontaspididæ 68
Odonthalia aleutica 266
" Lyallii 266
Ohio Gizzard Shad 60
Oil, Alligator 226
Bear 223
Black-fish 224–225
Cod-liver 226
Cotton, and its manufacture 169
Dog 223
Dugong 233
factory scraps 187
and fat from domestic animals 223
Goose 226
Grampus 225
of hawksbill turtle 228
Herring 227
Loggerhead-turtle 228
Manatee 223
Menhaden 227
of petrel and other sea birds 225
of pigeon (Ectopistes migratorius) 226
Porpoise-jaw 224–225
of rattlesnake, &c 226
Seal 223

Page.

Oil, Sea-elephant 223
Sea-lion 223
Shark-liver 227
Skate-liver 227
skin suit 165
Sperm 225
Sturgeon 227
Sun-fish 226
Oulachan 227
Turtle 226
from whales, &c 223–224
White-fish 227
Oiling 172
Oils, Bird 225–226
Consumption of 296–297
and fats 223–227, 297–298, 301
Fish 226–227, 297–298
and gelatines 174
Imports of 296–297, 301
Mammal 223–225
Reptile 226
Ointments (as tar and sweet-oil) 165
Oldwife 24
Oleomargarines 225
Oligoplites occidentalis 43
Oliva, Shells of 207
Onchorhynchus quinnat 58
One-armed chopsticks 117
Onion-fish 28
Operculæ, Mollusks of 207
Ophidiidæ 31
Ophidium marginatum 31
Opisthonema thrissa 60
Opium poisons 136
Optical instruments, &c 166–167
Oquassa Trout 58
Orange File-fish 25
Orca atra 11
" gladiator 11
Orcynus alalonga 40
" alliteratus 40
" argenti vittatus 40
" pelamys 40
" secundi dorsalis 40
Oregon Finner 13
Mole 14
Organ and piano keys, Manufacture of 173
Ornamental algæ 265
pearl-work 206
Ornaments, Feathers for 220
Hair used for 217
Orthropristis fulvomaculatus 47
Osmerus mordax 56
" pacificus 56
Osmic acid 177
Ostraciidæ 24
Ostracium quadricorne 24
" triquetrum 24
Ostrea lurida 254
" virginica 253–255
Ostrich culture, Methods of 244
Other accessories of preservation 168
apparatus 248
explosives 91
gill-nets 120

	Page.
Other materials not mentioned	232
seines	127–128
snake leather	216
Otter, American	4
(Lutra canadensis)	190
Sea (Enhydra marina)	41, 91
trawl	129
Otters	136
Oulachan	56
oil	227
rakes	82
Smoked	183
spears	82
Outfit, Camp	162
Medical	167
Ova, Accessories of obtaining and impregnating	245
Ovibos moschatus	7
Ovinæ	7
Ovis montana	7
Owls	137
Ox and calf, Hair of	195
hair	219
Hoofs of	202
Horns of	201
leather	209
Viscera of	215
Ox, Musk (Ovibus moschatus)	192
Oyster-bed tangles	243
Oyster-canoes	148
Oyster-culture, Methods of	248
Oyster-fish	32
Oyster-knives	75
Oyster-rakes	85
Oyster-scraper	129
Oyster-shovels	79
Oyster-tongs	85
Oysters	253–256
East American	253, 254
Exports of	281
Extra limital	254
Pearl (Aviculidæ)	206
West Coast	254

P.

Pacific Chimæra	65
Hair Seal (Phoca Richardi?)	192
Green Turtle	22
guano, Preparations illustrating	232
Hawkbill Turtle	2
Rock Eel	32
Right Whale	13
Pack-saddle fur (Hudson's Bay Territory)	142
Pack-saddles	142
Paco hair	195
Paddle-fish	64
Paddles	159–160
Padina pavonia	269
Pads, Riding (for buffalo-hunting)	142
Pagonias chromis	44
Pagophilus grœnlandicus	6
Pails	245
Palinurichthys perciformis	43
Palometta	39
Pancreatin	229
Pans	245
Shallow	247
Paper	200
made from waste	217
Molds of	177
Papier-maché	177
for gun-wadding	222
Paraffine	177
Molds of	177
Parasites, External	244
Internal	244
Paratractus pisquetus	41
Parchment labels	177
from viscera of bears	215
from viscera of seals	214
Parephippus quadratus	51
Parophrys vetulus	28
Parrot-fish	35
Blue	36
Tawny	35
Parry's marmot (Spermophilus Parryi)	193
Parts of splanchno-skeleton	199
Pastes	138
Paw, John	50
Pea-roe of cod	137
Pea-shooters	89
Pearl	206
oysters (Aviculidæ)	206
producing bivalves	257
shell, Sea-snails for	251
shells, Marine	258
White	205
work, Ornamental	206
Peccaries, Teeth of	197
Peccary	9
Teeth of	198
Pecten, Shells of	206
Peculiarities of form of East American oysters	255
Pediculati	23
Peep-sights	93
Pelican, Brown (Pelecanus fuscus)	195
Piline, Spongeo	223
Pelodichthys olivaris	62
Pemmican	182
Penicillus capitatus	271
" dumetosus	271
Pens	243
Pen-traps	131
Peprilus Gardenii	44
Pepsin, Manufacture of	175
Pepsine	229
Perca fluviatilis	49
Percesoces	53
Perch	37
Red	34
Striped	37
White	51
Yellow	49
Perches	137
Percidæ	49
Percussion needle	91
powder	91
Perfumery materials, Consumption of	298
Perfumes	175, 227

	Page.
Perfumes, Mammal	227–228
Manufacture of	175
Reptile	228
Persian insect-powder	178
Personal aids	142
equipments	164–167
Petrel, &c., Oil of	225
Petrocelis cruenta	271
Petromyzon americanus	70
Petromyzontidæ	70
Peyssonnelia atro-purpurea	267
Phanerodon furcatus	37
Phasianella, Shells of	207
Phocæna brachycion	11
lineata	11
vomerina	11
Phoca Richardsii	6
" vitulina	5
Phocidæ	5
Phocinæ	5
Phosphorus	200, 230
Imports of	299
Manufacture of	175
poisons	136
Photographic apparatus (accessory)	178
Photographs	233, 241
Phycis Chesteri	30
" chuss	29
" tenuis	29
Phyllitis fascia	270
Phyllophora membranifolia	268
" Brodiæi	267
Physeteridæ	12
Physeterinæ	12
Physeter macrocephalus	12
Pickerel	55
Brook	55
hooks	135
Pickled fish, Preparations of	187
foods	184
Pickling, Preservation by	169–170
Picric acid	177
Piercing-traps	135
Pierre-carton	177
Pigeon-nets	134
Pigeon, Oil of	226
Pigeons, Stool	139
Pigments, Wool used as medium for	219
Pigmy Sculpin	34
Pig, Snuffing	11
"Pike"	55, 61
Pike, Blubber	81
Pike, Gar	64
Pike-perch, Canada	49
Yellow	49
Pikea Californica	267
Pile-scrapers	79
Pimelepteridæ	46
Pimelepterus Boscii	46
Pinkies	147
Pinnipedia	5
Pins, Belaying	151
Pin, Toggle	161
Pipe, Aerating	247
Pipe-fish	25
Pipettes	246
Pistol-belts	95
Pistols and guns	90
Piston air-guns	90
Pitfalls	131
Pits, Covered	131
Plain hooks	97–100
sights	93
troughs	245
Plaited lines	114–116
Plants	264
for food, Specimens of	248
Plaster model-bodies	178
molds	177
Plasters	177
Plates, Wet and dry	178
Platichthys stellatus	28
Plectognathi	23
Pleuronectes glaber	26
Pleuronectidæ	26
Pliers	178
Plocamium coccineum	267
Plucking	170, 172
Plumagery, Art of	172
Plumes, Feathers for	220
Pocket Gopher	17
Pocket-nets	126
Pocket-traps	131
Pogie	59
Poisons	136
Blood	136
Food	136
Phosphorus	136
Opium	136
Polar Bear	5
Haro	18
Pole Flounder	27
Poles	160
Polishers, Shaft	89
Polishing	172–173
powders	207
Pollachius carbonarius	29
Pollack	29
Polyides rotundus	267
Polyodon folium	64
Polyodontidæ	64
Polysiphonia atrorubescens	266
" Baileyi	266
" bipinnata	266
" elongata	266
" fastigiata	266
" ferulacea	266
" fibrillosa	266
" Havanensis	266
" Harveyi	266
" nigrescens	266
" olneyi	266
" parasitica	266
" pecten-veneris	266
" pennata	266
" urceolata	266
" variegata	266
" violacea	266

	Page.
Polysiphonia Woodii	266
Pomacanthus arcuatus	39
Pomacentridæ	37
Pomacentrus leucostictus	37
Pomatomidæ	51
Pomatomus saltatrix	51
"Pommels"	171
Pomolobus mediocris	60
" pseudoharengus	60
Pomoxys nigromaculatus	48
Pompano	42
cast-nets	130
Salted	185
Short	42
Ponds, Fish (models)	244
Pool fish-ways	242
Porbeagle Shark	67
Porcelain stock, Sea-snails for	252
Porcupine, White-haired	18
Yellow-haired	18
Porgy	46
Spanish	36
Porichthys notatus	32
Pork, Exports of	277
Imports of	276
Salted	184
Poronotus triacanthus	43
Porphyra vulgaris	269
Porpoise	10–11
Baird's	10
Bay	11
Common	10
leather	214
Right-whale	10
Skunk	10
Sperm-whale	12
Striped	10, 11
jaw oil	224–325
Portable boats	145
bridges	142
Possum (Didelphys virginianus)	20, 194
hair	196
Potassium, Cyanide of	136
Ferrocyanide of	228
Pots, Barrel for eel	133
Eel, without leaders	132–133
Fish	132
Lobster	132
Try	175
Pouched Gopher	17
Pouches, Arrow-head	89, 94–95
Poudrettes	232
Poultry, Imports of	276
Pout Eel	31
Horn	62
Powder, Colonia	91
Giant	91
Percussion	91
Pyrethrum	165
Wood	91
Powder-horns	94
Powder-measures	92
Powders, Insect	178
Polishing	207
Prairie Dog	16
Prairie Hare	19
Squirrel	15
Wolf	189
Predatory animals not elsewhere exhibited	244
Preparation of albumen	175
of baits	170
of body-oil	174
of the bones	177
of "brillantine"	170
of cochineal colors	175
of coral	174
of feathers	170
of fibers for manufacture of plush carpets	171
of fish-scale work	174
of food	168–170
of guano	176
of curled hair for stuffing	170
of horn and hoof	173–174
of other hard tissues	173–174
tortoise shell	174
of silk from byssus of pinna	171
of silk of insects	171
of silk of silk-worms	171
of the skin and its appendages	171–173
of nacre	174
of spermaceti	174
of sponge stuffing	171
of soft parts of other invertebrates	171
of head oil	174
of stuffings	170
of whalebone	170, 173–174
of wool-cloths	170
of wool and hair of mammals	170
Preparations, Adhesive	135
Bird	183, 185
Fish	183, 185, 187
Mammal	182, 184
of mollusks	184, 187
of pickled fish	187
Radiate	184
Reptile	183, 185
Prepared ammunition	92
wads	92
Preservation, Accessories of	168
of the animal for scientific uses	176–178
by canning	169–170
by drying	168–170
of meats	168–170
of food	168–170
of game, fishes, &c	241
by pickling	169–170
Preservations	178
Preservative mixtures	176–177
Preserved meats, &c	163
Preserving fish, Specimens of salts used in	169
Pressing	170–173
Priacanthidæ	52
Primers	91
Prionitis Andersonii	268
" lanceolata	268
Prionotus carolinus	33

	Page.
Prionotus evolans	33
Pristidæ	67
Pristipomatidæ	47
Pristis antiquorum	67
Probangs	223
Probes, Snow	78
Probing-awls	79
Processes of currying	171
of tanning leather	172
of tawing or oil-dressing leather	172
Procyonidæ	5
Procyon lotor	5
Prodding-instruments	78–79
Prods, Thrusting	78
Productions, Insect	222
Mollusk	222
Products, Chemical	219
Proghorn Antelope	7
Promicrops guasa	50
Propagating-house, Model of, &c	248
Propagation	244–248
of amphibians	245
of bees	248
of birds	244
of corals	248
of fishes	245–247
of cochineal insect	248
of insects	248
of leeches	248
of mammals	244
of mollusks	248
of reptiles	245
of silk-worm	248
of sponges	248
of worms	248
Propylamine	230
Manufacture of	175
Prosopium Couesii	57
" quadrilaterale	57
Protection	241
and culture	233
from insects	165
Protozoans	184, 263
Chemical products from	231
Injurious	264
Useful	263–264
Provisions, meats, butter, cheese, eggs, &c.,	
Net exports of	301
not included, Imports of	301
Prussian blue	228
blue made from leather waste (see under 30)	217
Prussiate of potash (see under 30.)	203
Prussiates	228, 930
Manufacture of	175
Psettichthys melanostictus	28
Pseudemys concinna	21
" mobiliensis	21
" rugosa	21
Pseudopleuronectes americanus	26
Pseudopriacanthus altus	52
Pseudoscarus cœruleus	36
Pterophryne histrio	23
Pteroplatea maclura	66
Ptilota densa	269
Ptilota elegans	269
" hypnoides	269
" plumosa	269
Ptychocheilus grandis	61
Pulverizers	176
Puma (Felis concolor)	188
Claws of	203
Pump-bolt	161
Pump box and haft for seine-boat	161
Punctaria latifolia	270
" plantaginea	270
Punk	230
Purpura lapillus shells	206
Purpurate of ammonia dyes	228
Purse-nets	129
Pursuit, methods and appliances	142–167
Pusa gryphus	6
Pushing-sticks	160
Putnam's Flat-fish	26
Pygosteus occidentalis	53
Pyrethrum powder	165

Q.

	Page.
Quill articles, Manufacture of	172
brush-bristles, Manufacture of	172
Quills	219
of American hedge-hog	219
of birds	219
Consumption of	296
of crow	219
of duck	219
of eagles	219
Feathering	247
of goose	219
of mammals	219
for pens, Manufacture of	172
of swan	219
for tooth-picks, &c	219
of turkey	219
Quinnat	58
Quivers	89

R.

	Page.
Rabbit or Cony (Lepus cuniculus)	194
Fur of	196
Gray	19
hooks	80
Jack	19
Marsh	20
nets	122
Sage	20
spring-nets	130
tipe used in England	131
Water	20
White	18
Rabbit-fish	24
Rabbits, Down of	219
Raccoon	5
Hair of	195
Race-spawning (Ainsworth)	245
Racks	95
Gun	95
Radiata	262
preparations	184
Radiates	262

	Page.
Radiates, Chemical products from	231
Injurious	263
Useful	263
Raft-boats, Indian	144
Raft of tulé grass	144
Raiæ	65
Raia eglanteria	66
" erinacea	66
" lævis	67
" ocellata	66
" radiata	66
Raiidæ	66
Rake-dredge	129
Rakes, Clam	81
Oulachan	82
Oyster	85
Ralfsia verrucosa	270
Rammers	93
Rat, Black	17
Brown	17
Florida	18
leather	214
Musk	18
Rocky Mountain	18
Wood	18
Rattlesnake leather	216
Raven, Sea	34
Raw material for making artificial flies	138
material of nets	130
Rawhide	209
Ray, Butterfly	66
Cow-nosed	65
Eagle	65
Sting	66
Recoil-checks	94
Red Bass	45
coral (Corallium nobilis)	207
Fox (Vulpes fulvus)	189
Hare	19
Perch	34
Snapper	47
Squirrel	14
Red-bellied Snapper	49
Terrapin	21
Red-fish tackle	96
Red-mouth, Arara	47
Blue-checked	47
Blue-striped	47
Squirrel	47
Reels	118–119
Multiplying	118–119
Seine	119
Simple	118
Reeling	170–171
Refining	174
Refuse hair	219
human and other hair	219
Refrigerator, Banta	168
Refrigerator-cars	168
Refrigerators	168
Reindeer leather	210
Salted	184
Reinhardtius hippoglossoides	28
Remora	52, 137
Remoropsis brachyptera	52
Rendering whale-oil, Instruments and appliances of	174–175
Reniceps tiburo	68
Rennets, Imports of	299
Repairing, sighting, and testing fire-arms	93
Reptile oils	226
Extraction of	175
perfumes	228
preparations	183–185
skins, Leather prepared from	215–216
Reptiles	21
Chemical products from	230
Ivory of	198
Propagation of	245
Reports of the U. S. Fish Commission	233–237
Research, Apparatus for physical	233
Reservoir air-guns	90
Rest for harpoon, &c	162
Results, Appliances for working up	233
of work of U. S. Fish Commission	233–241
"Revolving booms"	117
Rhabdonia Coulteri	267
" tenera	267
Rhodymenia corallina	267
" palmata	267
Rhachianectes glaucus	112
Rhachochilus toxotes	38
Rhinobatidæ	67
Rhinobatus productus	67
Rhinonemus caudacuta	30
Rhinoptera quadriloba	65
Rhodomelia floccosa	266
" larix	266
" subfusca	266
Rhombochirus osteochir	52
Rhomboganoidei	64
Rhomboplites aurorubeus	48
Rhombus lævis	28
" maximus	28
Rhyzopods, Useful	264
Ribbon-weavers' bone, Manufacture of	173
Riding-pads (for buffalo hunting)	142
Riding-saddles	142
Rigger's hooks	152
Rigging fishing-vessels, Apparatus accessory to	150–162
Right Whale	13
Right-Whale Porpoise	10
Ringed Ground Squirrel	16
Rings, Clearing	122
Ripping-knives	72–73
River-mussels (Unionidæ)	206, 257
River-weirs, with pockets	131
River Sting Ray	66
Trout	58
Robes, Fur	162
Robin, Round	42
Roccus chrysops	51
" lineatus	51
Rock Bass	48
Eel	32
Grouper	50
Trout	35
Rock-fish	51
Banded	35

	Page.
Rock-fish, Black-eared	35
Black-headed	35
Rosy	34
Rockling, Four-bearded	30
Rocky Mountain Rat	18
sheep horn	202
Rods	119–121
Rods, Twisting	82
Roe	185
Roes, Dried and smoked	183
Roller, Spawning-screen (Collins)	245
Rollers, Dredge-line	119
Trawl-line	119
Rosmaridæ	6
Rosmarus Cookii	6
" obesus	6
Rose-fish	34
Rose-nozzles (for washing eggs)	247
Rosettes, woven work, and trinkets, Manufacture of	173
Rosy Rock-fish	34
Rotella, Shells of	207
Roth's vats	245
Rough Flounder	28
Round Herring	59
mouse-traps	134
Robin	42
"Round-Knives"	171
Round-tailed Ground Squirrel	15
Rowlocks	155–159
Rubber blankets	162
Rudder-fish, Banded	43
Black	43
Rudder-fixtures	154–155
Ruminants, Horn-cores of	200
"Russian sardines"	186
Rusty Flounder	26

S.

	Page.
Sable, American, or Hudson's Bay (Mustela Americana)	189
Sables, Hair of	195
Sacramento Salmon	58
Saddlery, harness, &c., Reports of	292–293
Saddle-slings	95
Saddles	142
Pack	142
Riding	142
Sage Rabbit	20
Sail-fish	39
Sailor's Choice	46
Sailors' sheath-knives	74
Salamander, Florida	17
Sal ammoniac (see under 30)	200, 230
Manufacture of	175
Salmo fario	58
Salmon	57
Artificial flies for	102–114
baskets (Columbia River)	131
hook-gill-net	124
Sacramento	58
Salted	185–186
Sebago	57
Smoked	183
Salmon-clubs	71
Salmon-tackle	95
Salmon-weirs (Upper Columbia River)	113
Salmonidæ	57
Salmo salar	57
Salt	178
(accessory)	169
Salted anchovies	186
baits (prepared)	137
beef	184
bluefish	185
buffalo meat	184
cod	185
deer	184
elk	184
foods	184
halibut	185
herring	186
mackerel	185
mullets	185
pompano	185
pork	184
reindeer	184
salmon	185, 186
Spanish mackerel	185
sword-fish	185
tongues of buffalo, deer, horse	184
turtle	185
Salting, Fish	169
Salt-mills, Models of (Cape Cod)	169
Salts, Specimens of, used in preserving fish	169
Salve-bug	231
Salvelinus fontinalis	58
" oquassa	58
Samia cecropia, Silk of	196
" polyphemus, Silk of	196
Samples gill-netting	125
of netting hung to lines	130
Sand-bath drying and steaming	172
Sand Dab	27
Eel	31
Shark	68
Sarda pelamys	40
Sardine-factory, Model of	169
Sardines, American	186
preserved, Foreign exports of	283
preserved, Imports of	279
Russian	186
Sargassum Agardianum	269
" bacciferum	269
" dentifolium	269
" vulgare	269
Sargus Holbrookii	46
Sarothrodus capistratus	38
" maculocinctus	39
Sauce, Anchovy	186
Sausages	183
Sausages, Bologna, Imports of	276
Sausage-skins, Imports of	276
Saw-fish	67
Sawing	173
Strip	173
Says' Striped Squirrel	15
Scabbard-fish	39
Scad, Big-eyed	41
Mackerel	42

Page.

Scales 166, 205
of fishes 205
Weighing 92
Sealed fish, Leather prepared from 216
Sealing apparatus 169
Sealing-knives 74
Scalp-locks, Human 217
Scalops aquaticus 13
" argentatus 13
Scalps of animals 217
Scapanus Breweri 14
" Townsendii 14
Scaphyrhynchops platyrhynchus 65
Scaridæ 35
Scarus Albildgaardii 35
" radians 36
" squalidus 35
Scent-decoys 138
Schizymenia (?) coccinea 268
" edulis 268
Schooner-rigged fishing-vessels 149
Sciænidæ 44
Sciænops ocellatus 45
Sciurus hudsonius 14
Scimaia furcellata 267
Scincus officinalis of Egypt 230
Sciuridæ 14
Sciurus Abertii 14
" carolinensis 14
" cinereus 14
" fossor 14
Scollops, Canned 187
Scomberesocidæ 54
Scomberesox scutellatus 55
Scomber scombrus 40
Scombridæ 40
Scoop, Dory 160
Sounding-machine 80
Scooping-instruments 79
Scoops 70
Hand 79
Scorpænidæ 34
Scouring 170–172
Scragg Whale 12
Scraper, Oyster 129
Scrapers, Deck 160
and parers, Skin 76
Pile 79
Scraping 171–172
Scraping-tools 177–178
Scraps, Fish 187
Oil-factory 187
Screens, Flannel 246
Sculpin 34
Greenland 34
Pigmy 34
Scup 46
Scuppaug 46
Scymnidæ 69
Scytosiphon lomentarius 270
Sea Bass 50
Bat 23
Dog 5
Elephant 6
Herring 60

Page.

Sea Lion 5
lion, Throat of 215
Otter 4, 191
Raven 34
Robin, Broad-fingered 33
Robin, Striped 33
Shad 60
Snail 33
Sea-boats 147–148
Sea-elephant oil 223
Sea-horse 25
Sea-lion leather 208
oil 223
Sea-snails 251
for bait 251
for cameo 252
for food 251
for dye-stuffs 252
Injurious 253
for pearl-shell, &c 251
for porcelain stock 252
used in Indian trade 252
Sea-urchins 262
Seal, Banded 6, 192
Common 5
Elephant 6
Fur 5, 191
Gray 6
hair (Phoca vitulina) 192
Harbor 5
Harp 6, 192
Hood or Bladder-nose 192
Hooded 6
lances 78
leather 208
Leopard 6
oil 223
oil, Imports of 296–297
Pacific Hair 192
scines 126
Sinews of 215
Square-flipper 6, 192
Walrus, leather from pharynx of 215
Sealing-wax, Imports of 299
Sebago Salmon 57
Sebastes marinus 34
" viviparus 34
Sebastodes paucipinis 35
Sebastomus auriculatus 35
" elongatus 35
" fasciatus 35
" rosaceus 34
Sebastosomus melanops 35
Secretion of skunk 229
Seine, Boat 146
floats of wood, cork, glass, and rubber. 117
lines 97
reels 119
Seines 126–128
Baird collecting 127
Bait 127
Bass 127
Bluefish 127
Capelin 127
Cod 127

	Page.
Seines, Herring	127
purse, Mackerel	129
Manatee	126
Menhaden	126
purse, Menhaden	129–130
Mullet	126
Other	127
Seal	126
Shad	126–127
Seine-windlasses	119
Selachostomi	64
Self-sealing jars used in collecting	176
Sepia, from Sepia officinalis	229
Sergeant Major	37
Seriola Lalandii	43
Serranidæ	49
Set-nets	133
Set-tackle	97
Set-traps	97
Sewellel	16
Shad	60
Bermuda	46
gill-nets used in Southern rivers	124
Mud	60
Ohio Gizzard	60
Sea	60
seines	126–127
slides	131
tackle	95
Winter	60
"Shad-waiter"	57
Shaft-gauges	89
Shaft-polishers	89
Shanty, Brook (Furman's)	246
Shaping	170–172
Shark, Atwood's	67
Blue	68
Blue-headed	68
Dusky	68
gear	97
Hammer-head	68
leather	217
Mackerel	67
Nurse	69
Porbeagle	67
Sand	68
Shovel-head	68
Sleeper	69
Sleeper, Jaws of (Somniosa brevipinna)	199
Spiny	70
Spotted-fin	68
Teeth of	199
Tiger	69
Shark-liver oil	227
Shark's vertebræ	200
Sharp-headed Finner Whale	13
Sharpies	146
Sharp-nosed Skate	67
Sturgeon	64
Sharpeners, Arrow-head	89
Shavings used in case-hardening gun-barrels, &c.	200
Shawls, Imports of	286
Sheaf-traps	134
Shearing	170
Sheep, Foreign imports of	274
Horns of	201
Exports of	274
leather	209
Mountain	7
Mountain (Ovis montana)	192
Sinews of	215
Viscera of	215
Sheep's wool	195
wool (on skin)	218
Sheepshead	46
Shell	206
Cameo	206
Conch (Strombus gigas)	206
Consumption of	290
of eggs	228
fish, Bivalve	233
helmet (Cassis rufa, &c.)	206
of king-crab	207
Shells of Buccinum	206
of Buccinum undatum	206
of Busycon	206
Calcined	207, 231
of Cypraea	207
of Dentalium	206
of Dolium	206
Ear (Haliotidæ)	206
Egg	230
of Fusus	206
Implements used for	206–207
of Haliotis	206
of Mactra	206
of Mercenaria	206
of Mercenaria violacea	206
of Murex	206
of nautilus and argonaut	206
of Oliva	207
of Pecten	206
of Phasinella	207
of Purpura lapillus	206
of Rotella	207
of Strombus	206
of Sycotypus	206
of Tridacna	206
of Triton	206
of Turritella	207
Shells, Top (Turbinidæ)	206
Shells, Tower (Trochidæ)	206
Shell, Tortoise (Ersemochelys squamata)	205
Shell-work, Composition	207
Shelter	162
Shields	165
Shiner	62
Shoemakers' wax-ends, Bristles for	219
Shoes, Snow	142
Shooters, Pea	89
Short Big-eye	52
Cyprinodon	56
hand-gear	90
Harvest-fish	44
Pompano	42
Short-nosed Gar Pike	64
Sturgeon	64
Short-tailed Prairie Dog	16

	Page.
Shot	92
Shot-holders	94–95
Shot-measures	92
Shot, Slung	71
Shoulder-slings	95
Shovel-head Shark	68
Shovel-nosed Sturgeon	65
Shovels	79
Clam	79
Oyster	79
Showt'l	16
Sibbaldius borealis	13
" sulfureus	13
" tectirostris	12
" tuberosus	13
Sight-decoys	139–141
Breech	93
Globe	93
Graduating	93
Muzzle	93
Peep	93
Plain	93
Slit	93
Telescope	93
Silk from byssus of Pinna, Preparation of	171
dress-goods, Imports of	289
of ena or arindy	196
Exports of raw	289
hosiery, Imports of	289
Imports of raw	288–289
of insects, Prepared from	196
of insects, Preparation of	171
of joree (Bombyx religiosa)	196
lines	114
and its manufactures, Consumption of	289
manufactures, Foreign exports of	289
other manufactures of, Imports of	289
other manufactures, Imports of, by countries	289
of moonga	196
of exotic moths	196
raw, Net imports of	301
of Samia cecropia	196
of Samia polyphemus	196
of silk-worms, Preparation of	171
of spiders	196
of tussah (Bombyx pernyi)	196
of common silk-worm (Bombyx mori)	196
Silk-worm gut	222
Silk-worm-gut snoods	116
Silk-worm, Propagation of	248
Siluridæ	62
Silver Fox (Vulpes alopex argentatus	189
Fish	41, 45
Gar-fish	54
Hake	30
Squeteague	44
Silver-sides	53
Silvery Mole	13
Simple bows	88
reels for fly-fishing	118
Sinches	142
Sinews of buffalo	215
of deer	215
Gelatines from	187
Sinews of goat	215
of seal	215
of sheep	215
of walrus	215
Single-groove fish-ways	241
Single-pointed hooks	80–81
Sinkers	117
Sinkers, Net	117
Siphons, Dried	184
Siphon-tubes	247
Sirenia	9
Sisco gill-nets	123
Size	221
Sizes and glues (see under 24)	200
Skate, Clear-nosed	66
Eglantine	66
Long-nosed	67
Sharp-nosed	67
Spring	66
Spotted	66
Skate-liver oil	227
Skates	142
Skeletons, &c	300
Apparatus for making	177
Skewers, &c	168
Skiffs, Hunting	147
Skimmer-nets	246
Skin and its appendages, Preparation of	171–173
boats	146
of Eels	231
Skins, Apparatus for making and mounting	178
of eel (Anguilla vulgaris)	216
Skin scrapers and parers	76
Skipper	55
Skunk, Alaska Sable	190
Common	4
Hair of, for brushes	217–219
Little Striped	4
Mexican	4
Porpoise	10
Secretion of	229
Striped (Spilogale zorilla)	190
White-backed	4
Slack's cans	247
Slate, Polishing of	207
Sledges, Deer	142
Dog	142
Steeple Shark	69
Slides, Fish	131
Shad	131
Slime-fish	70
Slings	167
for arms	95
Bird (used by Eskimos)	86
India-rubber	89
Saddle	95
Shoulder	95
and spears thrown by straps	88
Slit-sights	93
Slivering-knives	74–75
Slugs, Dried (Limax, &c)	184
Slung-shot	71
stones	71
weights	71
Small-footed Pouched Gopher	17

	Page.
Small-mouthed Black Bass	49
Small-spotted Dolphin	43
"Smelt"	53, 56
Smelt, &c	183
Smoked alewives	183
halibut	183
herring	183
mullet	183
oulachan	183
salmon	183
sturgeon	184
white-fish	183
Smoke-drying apparatus	169
Smoking-out apparatus	136
Smoke-houses, Halibut	169
Sturgeon	169
Smooth-back Flounder	26
Smooth Dog-fish	69
Sting Ray	66
Smudges	165
Snail, Sea	33
Snails, Sea	251
Snake-fish	56
Snake-tongs	86
Snapper	48–49
Bastard	46
Gray	48
Gulf	48
Mangrove	48
Red	47
Red-bellied	49
Star	50
Snapping Tortoise	22
Snares	134
Barrier	134
Bird	86
Fish	86
Foot-path	134
Jerk	86
Snipe Eel	63
Snoods	116
Flax	116
Gimp	116
Silkworm-gut	116
Wire	116
Snow-goggles	166
probes	78
shoes	142
Snuffling Pig	11
Soaking	172
Soap, Arsenical	178
common, Imports of	297
Exports of	297
fancy, Imports of	297
Soaps, Consumption of	296–297
from fish-oil	227
Imports of	296–297
from mammal oil	225
Soft parts of other invertebrates, Preparation of	171
Soft-shell Turtle	22
Sole	26, 28
American	26
Spotted California	28
Solea vulgaris	26
Soleidæ	26
Soluble glass, Infusorial earth for	208
Somniosus microcephalus	69
Sonora Ground Squirrel	16
Sound-decoys	138
Sounding-machine, Bull-dog	86
Scoop	80
Sounds	185
of cod and hake, Isinglass from	221–222
Southern Barracuda	53
Flounder	27
King-fish	25
Sowerby's Whale	12
Spades, Blubber-mincing	77
Cutting	76–77
Head	77
Half-round	77
Throat	77
Whale	76
Whaleman's boat	78
Wide	77
Spanish Lady-fish	36
Mackerel	41
mackerel, Salted	185
Porgy	36
Spargis coriacea	22
Sparidæ	46
Sparus aculealus	46
Spat, Stools for receiving natural and artificial	248
Spawning-race (Ainsworth)	245
Spawning salmon, Strait-jacket for	245
Spawning-screen roller (Collins)	245
Spawning-vat (Bond)	245
Spear-falls	135
Spear-fish Sucker	52
Spears, Barbed	82
Detachable-head	83–85
Eel	82
Fixed-head	82
Harpoon	85
Hurled	88
Oulachan	82
(with straps)	88
(with throwing-sticks)	88
Thrusting	78
Species of fish exhibited in the Allegretti and Banta refrigerators in Government building, May 10 to November 10	179–181
Specimens of American commercial sponges	223
Apparatus for collecting	233
of Cowry (Cypræa moneta)	206
of Mediterranean sponges	223
of natural history, Consumption of	299
of plants for food	248
Speckled Grunt	47
Sperm Whale	12
Ambergris of	228
jaw-bone	199–200
Teeth of (Physeter macrocephalus)	198
Sperm-oil	225

	Page.
Sperm oil, Exports of	297
Spermaceti	225
Exports of	297
Preparation of	174
and wax, Imports of	297
Spermophilus annulatus	16
" Franklini	15
" grammurus (Beechyi)	15
" Harrisi	15
" mexicanus	15
" Parryi	15
" Richardsoni	16
" spilosoma	16
" tereticaudis	15
" Townsendi	16
" tridecem-lineatus	15
Sphacelaria fusca	270
" radicans	270
Sphærozyga Carmichaelii	271
Sphargididæ	22
Sphyræna borealis	52
" picuda	63
Sphyrænid (?)	52
Sphyrna zygæna	68
Sphyrnidæ	68
Spiced lampreys	186
menhaden	186
Spiders, Silk of	196
web	222
Spike-fish	39
Spike-tail	29
Spikes, Marline	161–162
Spilliards	97
Spilogale zorilla	4
Spinacidæ	69
Spined Dog-fish	69
Spines of echinoides	208
Spinners	138
Spinning	170–171
Spring Shark	70
Skate	66
Spiral fish-ways	243
Spirulina tenuissima	271
Sponge, Burnt	231
"Sponge-tents"	223
Sponge-tongs	86
Sponges, &c	263–264
American commercial, Specimens of	223
Imports of	296
Mediterranean, Specimens of	223
Propagation of	248
Spongeo-piline	223
Spoon-baits, plain and fluted	101–102
Spoons, trolling	138
Spools	119
Splanchno-skeleton of feræ, Parts of	199
Splitting-knives	72–73, 75
Spot	45
Yellow-tailed	45
Spotted Bass	45
Cero	41
Codling	30
File-fish	24
Sole, California	28
Spotted Skate	66
Squeteague	44
Turbot	27
Wry-mouth	31
Spotted-fin Shark	68
Spreaders	117
Spring bird-nets	135
Spring-door traps	134
Springes	134
Spring-guns	89, 135
Spring-hooks	135
Springs, Stomach	136
Spring-weirs (St. Lawrence)	130
Spurs	142
Spyridia aculeata	268
" filamentosa	268
Squali	67
Squalus americanus	69
Square-flipper Seal (Erignathus barbatus)	6, 192
Squatina Dumerili	67
Squatinidæ	67
Squeteague	44
(Sciænidæ), Isinglass from	222
Silver	44
Spotted	44
Squids	137
and cuttles	251
and jigs	82, 138
Squirrel	44, 50
California Gray	14, 15
Fox	14
Gray	14
Hair of	217–218
Harris' Ground	15
Mexican Ground	15
Missouri Striped	15
Prairie	15
Red	14
Red-mouth	47
Ringed Ground	16
Round-tailed Ground	15
Townsend's Ground	16
Tuft-eared	14
Say's Striped	15
Sonora Ground	16
Squirrel Hake	29
Squirrel-hooks	80
Squirrels, Jerked, and other small mammals	182
Stands, Fish Commission	178
Stapling	170
Star-fish	262
Stargazer, Naked	32
Star-nosed Mole	14
Star Snapper	50
Stationary covers	141
Staves	142
Steamers	149–150
Steaming	173
Stearine, Imports of	297
Stearines, Manufactured	225
"Steel traps"	134–135
Stenogramma interrupta	267
Stenotomus argyrops	46
Step fish-ways	242
Stephanolepis setifer	25

	Page.
Steps, by arrangement of rock and bowlders	242
Stichæidæ	31
Stichæus punctatus	31
Stickle-back, Four-spined	54
New York	53
Ten-spined	53
Sticks, Curved	87
Glue (for fastening arrow-head)	89
Hurled	87
Pushing	160
Straight	87
Throw	87
Still-hunting, Lanterns for	141
Sting Ray	66
California	65
River	66
Smooth	66
Stizostedium canadense	49
vitreum	49
Stock-makers' bone, Manufacture of	173
Stomach-springs	136
Stone-headed clubs	71
Stone knives	75–76
Stones (thrown by hand)	87
Slung	71
Stool	162
pigeons	139
Stools for oyster spat	248
Stopping	170
Stops, Foot	153
Storage-tank, museum, Agassiz model	176
Storer's File-fish	25
"Stosh"	137
Stoves	162
Stowing and cutting in	174
Straight knives	71–76
sticks	87
Strait-jacket for spawning salmon	245
Straps, Cap	95
Stretchers	162
for kyak-line	162
"Stretching-irons"	171
Striped Bass	51
Gopher	15
Liparis	33
Mullet	53
Perch	37
Porpoise	10, 11
Sea Robin	33
Skunk	190
Sucker	61
Striped-bass tackle	96
Strip-sawing	173
Stromateidæ	43
Strombus, Shells of	206
Strychnine	136
Stuffed birds	300
Stuffing, Hair for	219
sponge, Preparation of	171
Stuffings, Manufacture of	170–171
Preparation of	170
Sturgeon, Lake	64
Long-nosed	65
leather	216
oil	227
Sturgeon, Sharp-nosed	64
Short-nosed	64
Shovel-nosed	65
Smoked	184
smoke-houses	169
Sublimate, Corrosive	136, 178
Sucker, Black	61
Chub	61
Common	61
Goode's	61
Spear-fish	52
Striped	61
Sword-fish	52
Sucker-fish	52
Sugar of milk, Imports of	299
Suit, Oil-skin	165
Suits, Hunting	164
Water-proof	164
Sulphur-bottom Whale	13
Sulphuring	172
Sun-drying apparatus	168
Sun-fish	23, 48
oil	226
Supplies, Commissary	162–164
Surface lines	97
tow-nets	129
Surf-tackle for throwing and hauling	96
Surgical apparatus	223
instruments, Manufacture of	173
Suspender-maker's bone, Manufacture of	173
Swabs	93
Swab-tangles	87
Swallows, esculent, Nests of	187
Swan (Cygnus americanus)	195
Quills of	219
Swans, Down of	220
Swell-fish	24
Swimming-birds, Decoy (carved in wood)	139
Swingle-tail	68
Swivels	117, 121–122
Sword-fish	39
Bone of	200
Salted	185
Sucker	52
Sycotypus, Shells of	206
Synaphobranchidæ	63
Synaphobranchus pinnatus	63
Synentognathi	54
Syngnathidæ	25
Syngnathus Peckianus	25
Synodontidæ	56
Synodus fœtens	56
Syringe-guns	90
Syringes	247
for injecting	176

T.

Table-furniture	163
Tables	169
Tackle, Angling	95
Bass	96
Black-bass	95
Bluefish	96
Drailing	96
Fly-fishing	95

	Page.
Tackle for fishing below surface	96–97
Pasque and Cuttyhunk bass	96
Red-fish	96
Salmon	95
Shad	95
Set	97
Striped-bass	96
Surf	96
for surface-fishing	95–96
Tide-drailing	96
Trolling	96
Trout	95
Whiffing	96
Tæniotoca lateralis	37
Tail, Golden	48
Tail, Hair	39
Tailor Herring	60
Tail-spike	29
Tallow, Exports of	297
Imports of	296–297
Talpidæ	13
Tame decoy-brants	139
decoy-ducks	139
Tamias quadrivitattus	15
" lateralis	15
" striatus	14
Tangles	87
Dredge	87
Harrow	87
Oyster-bed (see under B 12)	243
Swab	87
Wheel	87
Tanks	176, 246
with Freiburg aerating apparatus	247
(Stone's)	247
Tanners' refuse, Gelatines from	187
Tanning	172
leather, Processes of	172
Taonia Schrœderi	269
Tarandus rangifer	8
rangifer (grœnlandicus)	8
Tarpum	59
Tar and sweet-oil ointments	165
Tatusia septem-cinctus	20
Tautog	36
Tautoga onitis	36
Tautogolabrus adspersus	36
Tawing or oil-dressing leather, Process of	172
Tawny Parrot-fish	35
Taxidea americana	4
Taxidermist's tools for stuffing	178
Taxidermy	178
Teazling	170
Teeth of alligator	199
of bears	197
of dogs	197
of foxes	197
of peccaries	197
of peccary (Dicotyles sp.)	198
point clubs	71
of shark	199
of sperm-whale (Physeter macrocephalus)	198
of wolves	197
Teleocephali	26
Telescope-sights	93
Telescopes	166
Water	166
Ten-spined Stickle-back	53
Tenthididæ	38
Tents	162
Terrapin, Diamond-back	21
culture, Methods of	245
Florida	21
Red-bellied	21
Testudinata	21
Testudinidæ	21
Testudo Berlandieri	21
carolina	21
Tethers	243
Tetrapturus albidus	39
Tetrodon lævigatus	24
Tetrodontidæ	24
Texas Pouched Gopher	17
Textile fabrics	195
fabrics, Feathers for	220
Manufacture of	170–171
Thalarctos maritimus	5
Thalassochelys caouana	22
The chase and the fisheries	71
The Fish Commissioner, Reports of	233–237
Thief, Water	161
Thomomys clusius	17
" talpoides	17
Thread-fish	42
Herring	60
Thresher	68
Throating-knives	74
Throat of sea-lion	215
Throat-spades	77
Throw-sticks	87
Thrusting prods	78
spears	78
Thumb, American Miller's	34
Thymallus tricolor	58
Tide-drailing tackle	96
Tiger shark	69
Tinder	230
Tin vessels	246
Tipe, Rabbit	131
Toad-fish	32
Tobacco-pipe Fish	54
Tobacco, snuff, used as preservatives	178
Toggle-pin	161
Tolling-baits	137
Tom Cod	29
Tongs, &c	85
Coral	86
Oyster	85
Snake	86
Sponge	86
(two handles)	85
Tongues, Cod's	185
Salted, of buffalo, deer, horse	184
salted, Imports of	276
Tools	162, 178
Articulating	177
Carving	168
Flaying	178
Hand	71

	Page.
Tools for making artificial flies	138
Modeling	177
Scraping	177–178
for stuffing, Taxidermists'	178
Tooth-picks, Quills used in making	219
Manufacture of	172
Top-shells (Turbinidæ)	206
Torches	167
Torpedinidæ	66
Torpedo	66
occidentalis	66
Torpedoes	136
Tortoise-shell (Eretmochelys squamata)	205
Cat	188
Preparation of	174
Tortoise, Snapping	22
Tower-shells (Trochidæ)	206
Towing-nets	129
Townsend's Ground Squirrel	16
Tows, Bull	97
Traces	116
Trachurops crumenophthalmus	41
Trachynotus carolinus	42
" ovatus	42
Trade, Ice (accessory)	168
Trailing-nets	129
Trammel-nets	126
Transportation, Methods of	142–162
Transporting apparatus	247
eggs, Apparatus for	247
fish, Apparatus for	247
Trap, bird, French	135
Trap gill-nets	123
Trap-funnel	132
Trappings	166
Horse	142
Traps	131
Barrel	131
Bass	133
Bowl	134
Box	133
Clutching	134
Cob-house bird	134
Cross-bow	135
Crushing	135
Door	133–134
Double box	133
Eel	131
Fall	135
Figure-four	135
with hanging doors	133
Harpoon	135
Jawed	134, 135
Labyrinth	131–133
Missile	135
Mole	135
mole, Jar	131
Newhouse	134, 135
Noose	134
Pen	131
Piercing	135
Pocket	131
Set	97
Sheaf	134
Sieve (for birds)	130
Traps, Spring-door	134
Steel	134, 135
Turkey	131
Trawl-line rollers	119
Tub for (see under Trawl.)	
Trawl-lines	97
Trawl, Beam	129
(Trawl, Otter)	129
Trawls	129
Trays	246
Case of (Clark's)	247
Troughs with sieve-bottom	245
Vertical wire-cloth	246
"Treading hurdles"	171
Trehala	229
Trichechidæ	9
Trichechus manatus	9
Trichiuridæ	39
Trichiurus lepturus	39
Trichodiodon pilosus	24
Tridacna, Shells of	206
Triglidæ	33
Trimmings, Leather	214
Trionychidæ	22
Tripe, Imports of	276
Triple-tail Flasher	51
Tripods and stand, Camera with model	178
Tripoli, &c	207
Trisotropis undulosus	50
Triton, Shells of	206
Trolling-spoons	138
Trolling-tackle	96
Trombidium dye	229
Troughs	245
Brackett's	245
Clark's	245
Gravel-bottomed	245
Plain	245
with sieve-bottom trays	245
or tables (for picking eggs)	246
Williamson's	545
Trout, Artificial flies for	102–114
Brook	58
Lake	58
Namaycush	58
Ocean	186
Oquassa	58
River	58
Rock	35
tackle	95
Trowbridge's Hare	20
Trowels	79
Trumpet-fish	54
Trunk-fish	24
Trygon centrura	66
" hastata	66
" Sabina	66
Trygonidæ	66
Trying	174
Try-pots	175
Tubes, Siphon	247
Tub, line, Whaleman's	119
Tubs, &c	169
Tubs, Bait, vats, &c	170
Tub, Mincing	174

Page.

Tub for traw-line (see Trawl) 119
Tuft-eared Squirrel 14
Tulé grass, Raft of 144
Tunny 40
Little 40
Turbinaria vulgaris 269
Turbot 28
Greenland 28
Spotted 27
Turkey, Canned 185
Quills of 219
traps 131
Turning 173
Turritella, Shells of 207
Tursiops erebennus 10
" Gillii 10
Turtle, Alligator 22
Canned 185
Green 22
Hawksbill 22
Leatherback 22
Loggerhead 22
oil 226
Pacific, Green 22
Pacific, Hawksbill 22
Salted 185
Soft-shell 22
soup 185
Tusks of mammoth elephant (Elephas primigenius) 197
of walrus 197
Tassah, Silk of (Bombyx pernyi) 196
Twine, Netting 130
Twisted lines 114–116
Twisting-rods 82

U.

Udotea conglutinata 270
" flabellata 270
Ulva fasciata 271
" latissima 271
Umbrella-makers' bone, Manufacture of 173
Umiaks 144
Unarmed clubs 71
Uranidea viscosa 34
Uranoscopidæ 32
Urgulata 7
Urophycis regius 30
Ursidæ 4
Ursus americanus 5
" horribilis 4

V.

Vaccine limph 230
Vat, Spawning (Bond) 245
Vats 245
Boiling 177
Holton's 245
Macerating 177
Roth's 245
Vaucheria piloboloides 271
Vehicles 142
Venison, Dried and smoked 182
Imports of 276

Page.

Vertebræ, Shark's 200
Vertical wire-cloth trays 246
Vesicatory preparations from beetles, &c 231
Vessels, fishing, Schooner-rigged 149
Tin 246
Vests 95
Veziga 184
Veals 176
Vicugna hair 195
Virginia Deer (Cariacus virginianus) 8–9, 193
Hare 18
Viscera of bears, Parchment from 215
of hog 215
of ox 215
of seals, Parchment from 214
of sheep 215
Vomer setipinnis 41

W.

Wad-cutters (accessory) 92
Wadding 92
Bulk 92
Waders, Decoy (carved in wood) 139
Decoy (stamped in tin) 139
Wads, Prepared 92
Wagons 142
Wallets for lines and other tackle 167
Walrus 6
leather 208
Sinews of 215
Tusks of 197
Waste, Bone and ivory 200–201
Water Rabbit 20
Water-guns 90
Water-telescopes 166
Water-thief 161
Water-proof suits 164
Watery Flounder 27
Wax (Coccus pehlah) 230
Exports of 299
Imports of 299
Manufactures of 299
Ways, Fish 241–243
Weak-fish 44
Weapon-holders 95
Weasels 136
Hair of 195
Weaving 170–171
Hair used in 212
worsted cloths 170
Web, Spiders' 222
Weequashing or fire-fishing, Lanterns for 141
Weighing-scales 92
Weights (dropped) 87
Hurled 87
Slung 71
Weirs, Bar 134
Eel, with leaders 132
or pounds 132
River, with pockets 131
Salmon (Upper Columbia River) 131
Spring (St. Lawrence) 130
West coast oysters 254
Western Argentine 56

Page.

Whale-boat (whale-fisheries) 146
Whalebone brushes, Manufacture of..... 173
Consumption of 290
fiber 196
lines 115
manufactures, Other 174
Preparation of.....170, 173, 174
springs, Eskimo..... 136
(in manufactured state) 203–205
Whale, Bottle-head..... 12
Bowhead..... 13
Finback..... 12–13
and fish oil, Exports and imports of..296–297
Grässö 12
Gray..... 12
Humpback 12
Pacific Right..... 13
Porpoise Sperm 12
Right 13
Scragg 12
Sharp-headed Finner..... 13
Sowerby's..... 12
Sperm..... 12
Sulphur-bottom 13
White..... 10
Whale-lances..... 78
Whale-line drag..... 117
Whale-oil, Instruments and appliances of rendering.....174–175
Retraction of (with models)....174–175
Whale-spades 76
Whalemen's boat-spades 78
tub, line..... 119
boat-hatchets 16
boat-knives 73
hooks 81
Whaling-guns..... 91
Whales, &c., Oil from 223–224
Wheelbarrows for bait-clams..... 138
Wheel-tangles..... 87
Whiffing-tackle 96
Whip-makers' stock and whips, Manufacture of 173
Whips, Dog 126
Whistles, Dog.....136–137
White-backed Skunk..... 4
White Bass..... 51
Bear..... 5
Cat..... 188
coral (Oculina)..... 207
Hare 18
Mullet..... 53
Pearl 205
Perch 51
Rabbit 18
Whale..... 10
White-fish..... 10, 57
Chief Mountain Lake 57
Herring 57
oil..... 227
Smoked 183
White-footed Mouse..... 17
White-haired Porcupine..... 18
White-headed Grampus 11

Page.

Whiting..... 30
Lake 57
Wholesale destruction apparatus..... 136
Wide spades 77
Wigs, Hair used for..... 217
Williamson's troughs..... 245
Winches, Gunwale..... 119
Winders 119
Wind-gauges..... 93
Windlasses, Seine 119
Window and plate glass, Infusòrial earths for 208
Wings of beetles..... 208
Wing-shell, Byssus of (Pinna nobilis)..... 196
Winter Flounder..... 26
Shad 60
Wire frames 178
snoods..... 116
Wolf (Canis lupus)..... 188
Claws of..... 203
Wolf-fish..... 32
Wolverine (Gulo luscus) 4, 190
Wolves, Teeth of..... 197
Woodchuck or Siffleur (Arctomys monax)..16, 197
Wooden canoes..... 143
frames..... 178
Woodland Caribou (Tarandus rangifer)..... 8, 193
Wood-powder 91
Wood Rat..... 18
Wool as medium for pigments..... 219
cloths, Preparation of 170
Exports of.....287–288, 301
flocking.....219, 228
Goat's (for wigs, &c.) 195, 217
and hair..... 217
Imports of.....285–286, 301
and hair of mammals, Preparation of. 170
pelts, Imports of 290
Sheep's..... 195
Sheep's (on skin) 218
work 172
Woolen carpets, Exports of.....287–288
Woorara 136
Work, Results of, United States Fish Commission.....233–241
Worms.....137, 184
Dried..... 184
Intestinal..... 244
and leeches, injurious..... 262
and leeches, useful..... 262
Chemical products from 231
Propagation of..... 248
"Worms" and other loading tools..... 93
Worsted cloths, Weaving..... 170
Wrangelia penicillata 268
Wrist-guards..... 166
Wry-mouth, Spotted 31
Wurdemannia cotacea..... 267

X.

Xiphias gladius 39
Xiphidiontidæ..... 32
Xiphiidæ..... 39

Y.

Page.
Yak (Poëphagus grunniens) 195
Yellow Crevallé 41
Gopher 16
Mackerel 42
Perch 49
Pike-perch 49
Tail 45
Yellow-finned Grunt 47
Yellow-footed Marmot 16
Yellow-haired Porcupine 18
Yellow-tailed Spot 45

Z.

Zalophus Gillicspii 5
Ziphiidæ 12
Ziphiinæ 12
Zoarces anguillaris 31
Zonichthys fasciatus 42
Zonaria flava 269
" lobata 269

INDEX OF CONTRIBUTORS.

A.

Page.

Abbott, Dr. C. C 240
Abert, Lieutenant J. T 17
Academy of Natural Sciences 17
Adam, J. G 131, 132, 148
Adams, A. Leith 236
Agassiz, Alexander, 24, 26, 28, 41, 44, 45, 47, 50 53, 55, 59, 60, 62, 63, 65, 66, 70
Aiken, C. E 4, 7, 14
Alaska Commercial Company 5–6, 126, 160, 191
Allegretti Refrigerator Company 168
Allen, J. & S 115
Almy, D. D 244
Alvord, F. W 146
American Needle and Fish-Hook Company .. 97, 98, 99, 100
American Net and Twine Company .. 125, 126, 127, 128, 130, 131, 132, 133
American Sardine Company 186
American Whip Company 203, 205
Ames, James T 252, 256, 257, 258
Ams, Max 186, 187
Anderson, Dr. C. L 265
Armitage, J 7
Army Medical Museum 182
Atkins, C. G 57, 235, 237, 239, 241, 242, 243, 244, 245, 247, 248
Atwood, Capt. N. E 223, 224, 226, 227, 251
Averill, H 265

B.

Babcock, Dr. W. H 226
Baird, S. F 11, 14, 17, 21, 22, 24, 27, 28, 40, 64, 66, 68, 78, 83, 84, 86, 131, 132, 144, 190, 192, 200, 235
Baker, Captain 5
Banta, G. A 168
Barber, J. C 8
Barfurth, D 240
Barnston, J 8
Barnum, P. T 9
Barry, Rev. A. C 14
Bartlett, J. H., & Sons 100, 197, 198, 200
Batchelder, J. H 265
Batty, J. H 14, 16
Baxter, Robert D 161
Bean, Tarleton H 22, 26
Beckwith, E. G 15
Beebe, Mrs 265
Beesley, Thomas 259
Bell, J. G 14, 18, 19
Bergland, Lieutenant 10
Biddle, Henry J 7
Bischoff, F 15, 16, 263
Bishop, N. H 145, 148
Blackford, E. G 253, 254, 255, 257, 259, 260
Boardman, G. A 7, 14
Booth, Miss M. A 265
Boston Society Natural History 263

Page.

Botteni, Mr 4
Bowchon, Brandley 236
Boughter, Dr. J. T 94
Bowman, J. S 9
Bossange, Gustave 205, 228
Brackett, A. G 8, 16
Brackett, E. A 246
Bradford & Anthony 77, 80, 82, 96, 97, 99, 102, 114, 116, 120, 128, 138, 258
Brand, C. C 91
Bransford, Dr 260
Brasher, P 139, 140, 148
Breck, A. J 238
Brewer, James D 241, 242
Broeck, Axel 239
Brown, Theo 154
Brown, William H 220, 221
British Museum 23
Buck, Jonathan 165
Buel, J. T 101
Burling, William 144
Burritt, Francis 139, 140
Burt, Hannah, Mrs 75

C.

Carley, B. J. M 256, 257, 259, 261, 264
Castine Packing Company 261
Central Wharf Company .. 75, 100, 101, 117, 121, 122, 165
Chapman, W. D 121
Chapman, W. D., & Son 102
Chase, W. H 138, 146, 147, 148, 149, 150, 169
Chester, Capt. H. C 146, 149, 153, 197, 244
Chicago Feather-Duster Company 220
Churchill, General S 7
Clark, Frank N 246
Clark, George 57
Clark, James B 154
Clark, J. H 86, 198, 260
Clark, N. W 246
Clark & Sneider 90
Claughton, H. O 132
Cleveland, D 265
Cleveland, Capt. Josiah 132, 133
Cleveland, William 147
Coleman, Walter 151, 153
Coleman, Walter, & Sons 150
Coleman, William 155
Colt's Fire-Arms Manufacturing Company . 90, 91
Collins, Jos. W 30, 56, 65, 97
Collins, W. O 9
Colyer, Vincent 83, 88, 89, 94, 159, 162, 208
Commagére, F. T 198
Carter, J. F 165
Carroll, Michael 192
Castine Packing Company 164
Cape Ann Isinglass and Glue Company ... 221, 222

Page.

Conrad, T. A 253, 256, 257
Conwell, David 165
Cook, Capt. Caleb 224, 225
Cook, Coleman 100
Cook, Elisha 99, 100
Cook, E. H 200
Cook, Lemuel 82, 96, 100, 101, 121
Cook, W. H 73, 78
Cooper, J. G 19
Copley, C 23, 31
Couch, Lieut. D. N 19, 94, 147, 166
Coues, Dr. Elliott 7, 9, 16, 19, 56, 57, 141
Cragin & Sheldon 147
Crandall, C. H 197
Crandall, L., & Co 115
Crittenden, A. R 75, 79, 82, 83, 97, 99, 101, 117, 122, 149, 165, 200, 256, 264
Crook, E. R 165
Crooks, N 149
Culbertson, T 9, 19
Curley, Rev. James 84, 89, 116
Curtis, M. A 20
Cusick, Lieutenant 201

D.

Dall, W. H 6, 8, 10, 12, 76, 81, 83, 85, 88, 89, 92, 94, 99, 100, 115, 131, 132, 134, 142, 144, 160, 166, 192, 197, 201, 214, 216, 251, 252, 254, 256, 257, 265
Daniell, W. C 236
Darrow Manufacturing Company 209
Davis, Mrs. A. S 265
Davis, Benjamin 256
Davis, Edward 75
Dawson, J. W 253
De Frece, A. B., & Co 251, 252, 258
Delano, George, & Co 223, 224, 225
Delong & Sons 159, 160
Dewey 259
Dixon, Robert 253
"Dobsis Club," through Judge H. Jewell 58
Dodd, P. W 6
Dodge, R. T 159
Downes, A 17
Downes, John 18
Dove, Mrs 198
Dresser, J. W 115
Drexler, C 4, 13, 14, 16
Dunan, W. S 232
Duncklee, H. L 162

E.

Eagle Preserved Fish 186
Eaton, Prof. D. C 265
Edmunds, M. C 237
Edwards, V. N 10, 11, 23, 24, 27, 30, 41, 46, 51, 58, 63, 66, 68, 69, 258, 260
Elliott, H. W 5, 84, 100, 116, 117, 129, 135, 144, 191, 197, 208
Elwell, Samuel, jr 73, 75, 78, 119, 122, 151, 153, 156, 160, 165, 258
Emory, Maj. W. H 15
Engineer Corps, U. S 190
English, William 146
Eskimo Joe 144
Eureka Manufacturing Company 90

Page.

Evans, John 25
Exall, G 13
Exploring Expedition U. S 22, 99, 100, 166, 252

F.

Fadderdin, A 238
Fairie, James 20
Falls, A. J 14
Farlow, W. G 234, 239, 265
Feiner, Lieut. John 83
Fenner, C. A 145
Ferguson, S. W 22
Ferguson, Maj. T. B 79, 148, 149, 246
Fish Commission, U. S 5, 10, 13, 23, 37, 39, 49, 51, 70, 74, 75, 78, 80, 82, 83, 87, 91, 119, 128, 129, 133, 141, 149, 151, 160, 166, 169, 178, 198, 246, 247, 260, 264
Fisher, Capt. Jos 198
Fitzhugh, D. H 140
Fitzhugh, D. L 147
Forest and Stream Publishing Company 74, 80, 93, 96, 101, 102, 114, 118, 121, 127, 129, 138, 140, 163, 167
Foster, George B 72, 73, 75, 117, 121, 122, 200
Freeman, Sanford 100, 162, 199, 200
French, E. B 123, 124, 126, 127
Fuller, C. B 253, 256
Fuley, Col. J 9

G.

Gabb, W. M 9
Gardiner, Capt. J. W. T 128, 189
Gaudet, C. P 99
Ghisslin, Dr. J. T 216
Gibbes, Dr. L. R 265
Gibbs, Theo 4, 83, 85, 99, 100, 115, 128, 130, 143, 202
Gifford, John D 148
Gifford, Thomas J 101
Gilbert, E. F 199, 258
Gilliss, J. M 9
Gill, Theo 32, 235, 238
Gilpin, Dr. Bernard 7
Goodale, S. L 187
Goode, F. C 21, 144
Goode, G. Brown 17, 19, 21, 24, 25, 38, 42, 44, 46, 48, 50, 51, 53, 55, 60, 62, 70, 79, 80, 101, 119, 129, 132, 133, 160, 161, 210, 215, 216, 258, 273
Gordon, W. Alex 254
Government of Newfoundland 6
Governor of Newfoundland 192
Gower, F. A 157
Grant, M. W 77, 80, 81, 82, 99, 160
Graves, F. D 157
Graves, Frederick 147
Graves, J. L 120
Green, G. L 132
Green, Seth 246
Grieve, Walter & Co 223
Griffin Bro 183
Grower, F. A 159
Gulf Porpoise Fishing Company 214
Gunnison, Captain 197, 215

H.

Haime, Jules 236
Haldeman, Prof. S. S 8
Hall, Capt. C. F 78, 83, 84, 100, 201, 263
Hall, Rev. E ..... 20[illegible]

Page.

Hallet, Captain 148
Hallett, Freeman 100, 101
Halstead, Mrs. B. D 265
Hamlin, A. C 236
Hammond, J. F 19
Hardestie, W. L 7
Harvey & Ford 199, 202, 252
Harvey & Holden 254
Harvey, Rev. M 6
Haven, Williams & Co 223
Hay, E. B. & F 77
Hay, Col. H. D 50
Hayden, F. V 7, 8, 17, 19, 190
Hayes, Dr 6, 8, 84, 144
Heath, L. J 264
Heerman, Dr. A. L 14, 15
Hegeman Portable Folding Boat Company .. 145
Hemphill, H 251, 254, 256, 257, 260, 262, 265, 271
Henderson, J. H 203, 210, 216
Henman, J 14
Henning, Geo. C 164
Henry, T. C 16
Herpich, C. A., & Co 188, 195
Herron, E 133, 134
Hesbolt, Wm. H 77, 81, 82, 161
Hessel, Rudolph 235, 237
Hessel, Rufus 241
Hewitt, H. N 55
Higgins & Gifford 130, 146, 159
Hitchcock, G. N 22
Hoff, Dr. A. H 94, 99, 201
Hooper & Coit 186
Hooper, F. W 265
Hooper, Wm. E., & Sons 126, 130, 133
Horan, Henry 133, 134, 135
Horton, Dr. S. M 86, 95, 210
Hough, R. B 94
House, J. C 246
Howard, W. A 88
Howard, W. H 85
Howland, Capt. L 73, 76, 146, 175
Hoy, Dr. P. R 14–15
Hoyt Bros 252, 253, 263
Hunt, A. G 258
Hurlbert, Capt. R. H 30, 82
Hutchinson, S. G., & Co 211
Hutchinson, Kohl & Co 131

I.

Ingalls, J. F 237
Isaacs & Co 263, 264

J.

Jack, Mr 7
James, William H 101
Janney, N 18
Jeffries, Dr 32, 36, 39
Jenkins, A. R 14
Jenks, J. W. P 4, 18
Jewell, Judge H 57
Jewett, Col. E 197, 258
Jones, J. M 44
Jones, Stratton 166
John Russell Cutlery Company 71–76

Page.

Johnson, F. H 27, 29, 32, 34
Johnson, Capt. G. A 52
Johnson & Young 129, 132, 148, 169
Jouy, P. Louis 139
Judge, Edwin M 137
Judge, Edwin W 93

K.

Keergaard, F. C., & Co 205
Kelsey & Hosmer 169
Kemp, Day & Co 185, 259, 261
Kennedy, Andrew 119, 161, 198
Kennerly, Dr 9, 19, 143, 190, 193
Kennicott, R 18, 99, 100, 128, 134, 138, 190, 193, 210, 215
Kennard, Charles W 205
Kent, D. F 13
Kimball, Dr. J. P 201
C. J. King 18
King, Lieut. F. W 85
King, W. S 15
Kirby, Humphrey S 81, 82, 151
Kirkby, W. W 193
Kirtland, Dr. J. P 14
Knox, S. R 39
Kohn, Gustav 21, 253, 256, 258, 260, 261
Kopsch, H 239
Krider, John 139, 140
Kurtz, T. D 253

L.

Laing, J. M 23
Lanman, Charles 235
Le Paiz, William N 221, 222
Laszlo, C. H 20
Latham, James H 43, 132, 141
Lawler, Joseph 149, 175
Lawrence, Alfred 10
Lawrence, Amos 260
Leavenworth, J. H 8
Leib, T 32
Leonard, H. L 121
Lesley, A. M 168
Leslie, C. C 48
Levey, J. A 263
Lewis, George H 99
Lewis, William 91
Lincoln, George F 201, 202
Liverpool Free Public Museum 29, 30
Luce, Jason 67
Lyman, Theodore 237
Lyman, William 156

M.

Macy, E. B. & F 76, 78, 81, 151, 161
Mahrenholz 208, 216
Mann, John H 101
Mansfield, G. H. & Co 114, 115
Marcy, Captain 19
Martin, Capt. S. J 89
Marvin Bros. & Bartlett 226, 227
Massachusetts Arms Company 90, 91, 92, 93
Mather, Fred 30, 58, 246
Mathew, G. F 253
Mathews, Dr. W 146

Page.

McBride, Sara J 102
McCaleb, Vinald 78
McClain, A. O 246
McCurdy, Alex....72, 75, 80, 96, 101, 122, 160, 161, 162
McDonald, M 242
McDonald, Allan L 119, 155
McFadden, F 150
McFadyn, Malcolm 149, 198
MacFarlane, R.....6, 16, 75, 83, 86, 99, 100, 115, 126, 127, 136, 138, 144, 162, 166, 202, 203, 208, 215
McFarlane, R. R 15
McKennie, M 237
McLaughlin, W. B 132
McLeod, Rev. R. R 8
Maryland Academy of Science 69
Meek, F. B 252, 259
Megler, J. G., & Co 185, 186
Meigs, General M. C 86
Merchant, Philip 71, 97, 122
Merrill, Dr. J. C 5, 21
Middleton, Carman & Co 28
Miles, George W 86, 94, 217, 218, 219, 227, 232
Miller, Dr. C. A 257
Milner, J. W.....21, 45, 59, 60, 65, 122, 138, 149, 169, 235, 237, 239, 241, 260
Minor, Dr. T. T.....4, 85, 88, 89, 97, 116, 126, 214
Möllhausen, H. B 7
Moore, Thomas 37, 38
Morris, William 96, 141
Moses, William B 264
Mott, Mrs. C. E 205, 220, 258
Munn, J., & Co 223
Museum of Comparative Zoology 55, 66

N.

Nason, J. P 101
National Institution 4, 5, 12
National Preserving Company 182
Nelson, E. W 240
Newberry, J. S 4, 9, 19, 20
Nichols, J. A 94, 95
Nickerson, George Y..10, 83, 84, 117, 197, 198, 199, 205
Niles, Kossuth 254
Norman, A. J 94
Norris, Thaddeus 120, 121
North American Oil Company 224, 227
North Pacific Exploring Expedition.....127, 128
New York Condensed Milk Company 182, 229

O.

Odell, D. T 183
Onion, J. S 7

P.

Packard, A. S., jr 239
Page, G. S 58
Palmer, E.....9, 20, 57, 63, 83, 86, 87, 93, 95, 99, 141, 143, 159, 166, 182, 184, 195, 200, 209, 210, 215, 224, 256, 265
Palmer, Joseph 22
Palmer, W 262
Parker Brothers 90
Parker, C. H 258
Parmalee, D. D 132
Parsons, Jos., jr 82, 101, 117, 165
Payne, N. H 131, 200

Page.

Peabody, George H 224
Peale, T. R 14
Pelton, W. T 258
Peterson, N. C 257
Peyrer, Carl 239
Pollard, R. O 18
Poole & Hunt 176
Pope, Capt. J 4
Portland Packing Company.....163, 164, 185, 186, 259, 261
Potter, T. & E. H 260
Potter, Charles T 44, 133
Potter, Weeks 228
Powell, Maj. J. W.....80, 86, 95, 122, 130, 142, 202, 209
Powell, S 42, 46, 59
Powers, Stephen..85, 96, 99, 122, 126, 128, 134, 139, 144, 183, 194, 202, 230, 262
Phinney, Elihu 57
Platt, W. B 16
Prior, William, jr., & Co 30
Putnam, F. W 26

R.

Randolph, Septimia, Miss 243
Remington & Sons, E 90, 93
Renfrew, G. R 191, 192, 194, 199
Renfrew, G. R., & Co....10, 69, 188, 189, 190, 193, 208, 210, 214, 215, 223, 229
Rich, Newell B 100, 117
Richard, J. H 45, 62
Richardson, James 255, 256, 264
Ridgway, Robert 13, 15, 22, 139
Ring, Lieut. F. M 99–101, 143, 189
Rodgers, Herbert M., & Co 226
Rodgers, Capt. John 83, 85, 88
Rogers, C. W 247
Ross, B. R 4, 15, 86, 90, 99, 115, 142, 143, 189, 190
Ross & Hardesty 18
Ross, R. R 166
Ross, W. A., & Bro 264, 265
Roth, John 245
Rothe, J. T 242
Rothrock, J. T 94, 215
Rowe, Capt. E. L 72, 74, 101, 121

S.

Salisbury, S 85
Samuels, E 19, 20
Sars, Prof. C. O 239
Sartorius, Dr 128
Sawyer, E. A 153
Scammon, Capt. C. M 6, 8, 10, 11, 13, 202
Schacht & Bros 183, 186, 222, 227
Schaffer, E 229
Schayer Bros 216
Schott, Dr 259
Schultz, Alexander 238
Schumacher, Paul 252
Scott, A. R., & Co 145
Scoville & Johnson 163
Scupham, J. R 260
Sevey, J. A 203, 204, 205
Sibley 44
Simpson, Capt. J. H 16, 19, 139
Shaffer, D. H 257
Shardlow, Joseph 197, 198, 199

Page.

Shaw, F. S 36, 48
Shaw, W. J 13
Shotwell, J. R 240
Shute, C. H 146
Shute, C. H., & Son 149
Skidmore, J. H 52
Skillings, E 66, 168
Skinner, D. M 101
Slack, Mrs. J. H 246
Small, E. E 70, 224, 225, 227
Smidlo, J. K 238
Smith, N C 132
Smith, Sidney I 237
Smith, W. W 151
Smithsonian Institution 83, 84, 85, 88, 90, 131, 188, 189
Soudakeviez, Theo 236
Southwick, J. M. K 82, 96, 99, 101, 117, 119, 128, 131, 132, 148, 153, 244
Spangler, George 64, 65
Sparks, Thomas 92
Springman, A. V 238
Squibb, Dr. E. R 227, 228, 230, 265
Stanley, J. M 8
Starling & Stevens 146
Stansbury, Captain 4
Stearns, Silas 44, 48, 50
Steel, George P 82
Stenzel, Alexander 237
Sternberg, Dr. G. M 209
Sternberg, S 8
Stevens, Henry A 139, 140
Stevenson & James 7, 16
Stillwell, E. M 58, 237
Stimpson, W 31, 252, 254, 256, 263
Stone, Miss Anabel 260
Stone & Hooper 244, 247
Stone, Livingston 28, 34, 35, 37, 53, 58, 65, 67, 85, 128, 147, 148, 183, 184, 193, 210, 235, 239, 240, 241, 246, 247
Storror, Dr. E 86
Strater, Herman, & Sons 139, 140
Stratton, Dr. I 265
Suckley, Dr. J. G 259
Suckley, Dr. George 9, 14, 16, 65, 84, 143, 189, 190, 235
Sutherland, John 25, 44
Swan, J. G 9, 78, 80, 82–85, 88, 94, 96, 99, 100, 116, 117, 128, 143, 159, 160, 183, 184, 193, 195, 197, 201, 202, 214, 215, 222, 251, 257, 259
Sweetman, Henry 147
Swift, Dr 7
Syvski, Dr 240

T.

Tarr, James 99
Taylor, Amasa 119, 122, 153
Thomas, General George H 8, 9, 15, 199
Thomas, John 99
Thompson, William 40
Thomson, J. H 12, 76, 78, 119
Totten, General 253
Townsend, J. K 14
Treadwell, G. C., & Co 190, 191
Trefethen, H 221
Treat, Capt. U. S 227, 132
Trowbridge, Lieut. W. P 17, 190
Twiss, Major 4

U.

Underwood & Co 163, 164, 185, 259
Underwood, William 261
United States Northern Boundary Survey 7

V.

Valentine, M. L 182
Varden, J 94, 142, 198
Velie, Dr. J. W 66, 82, 83
Verrill, A. E 234, 237, 258, 261, 262
Verrill, C. E 260
Vielle, W 15
Voss, Adolph 73, 75, 77, 83, 170

W.

Walker, Daniel 150
Wallace, John 5, 10, 18, 260
Waltham & Graham 90
War Department 94
Ward, H. A 5, 9, 16, 21, 67
Warren, Lieut. G. K 8, 86, 94
Welch, George 4
Welpley, Dr. P 8, 18
Wernich & Wandel 216
Westerberger, Frank 200
Weston, William H 160, 161
Willis, J. H 253
Wheeler, Lieut. George M 190
Wheeler, W. F 7
Whipple, Lieut. A. W 83
White Manufacturing Company 141
White, Dr. J. B 141, 143, 144
White, Lieut. J. W 116
Whitney Arms Company 90, 91
Wilcox, Crittenden & Co 73, 74, 83, 85, 117, 122, 128, 130, 150–157, 159–162
Wilcox Tannery 209
Wilkens, William, & Co 218, 219
Williams, Haven & Co 146
Williamson, Lieut. R. S 15
Willis, J. R 18
Wilmot S 60
Wilson, Dr 20
Winans, J. Ross 118
Winchester Repeating Arms 91, 92
Wilkes, Lieutenant 159
Wilkes, Capt. Charles 8, 83, 92, 143, 197, 198
Woodford, Philip R 202
Woltz, G. W 138
Woltz, T. N 133, 134
Wood, W. F 8
Woodhouse, Doctor 14, 16
Woodford, Philip R 201
Wyeth, John, & Bro 225, 226, 228, 229

X.

Xantus, John 19, 258

Y.

Yarrow, H. C 48, 49, 51, 135, 236
Young, A. R 265
Young, W. H 100
Young, W. M 96, 97, 102, 117

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